

FIG. 1

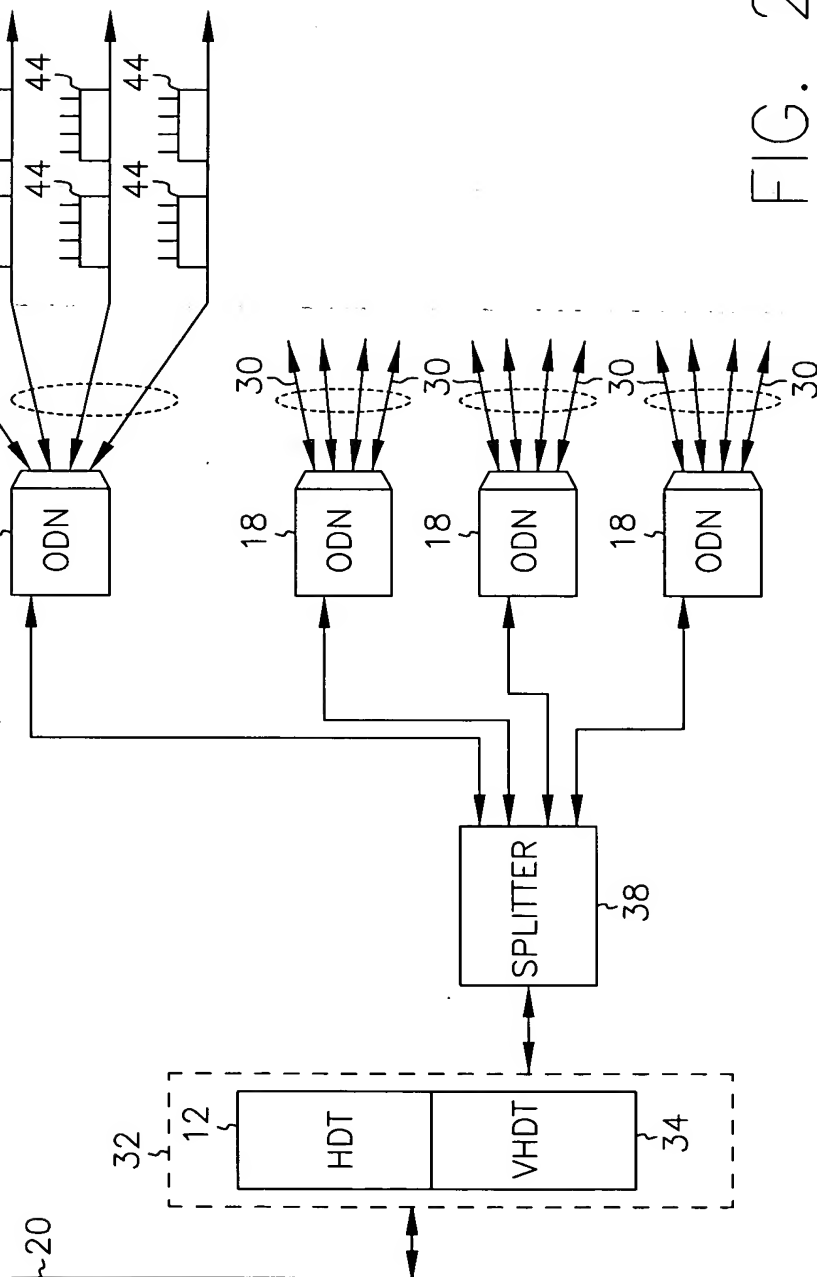


FIG. 2

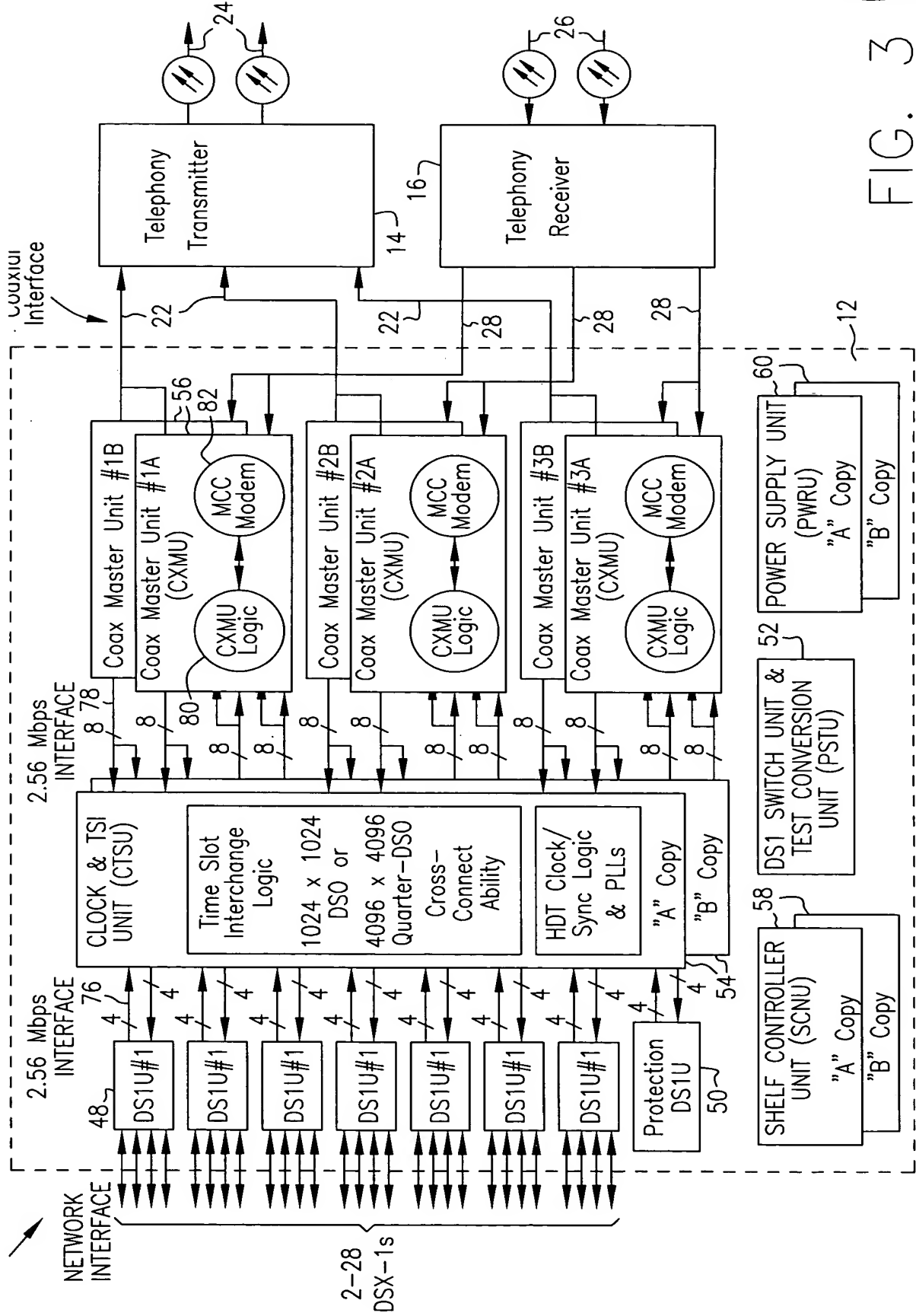


FIG. 3

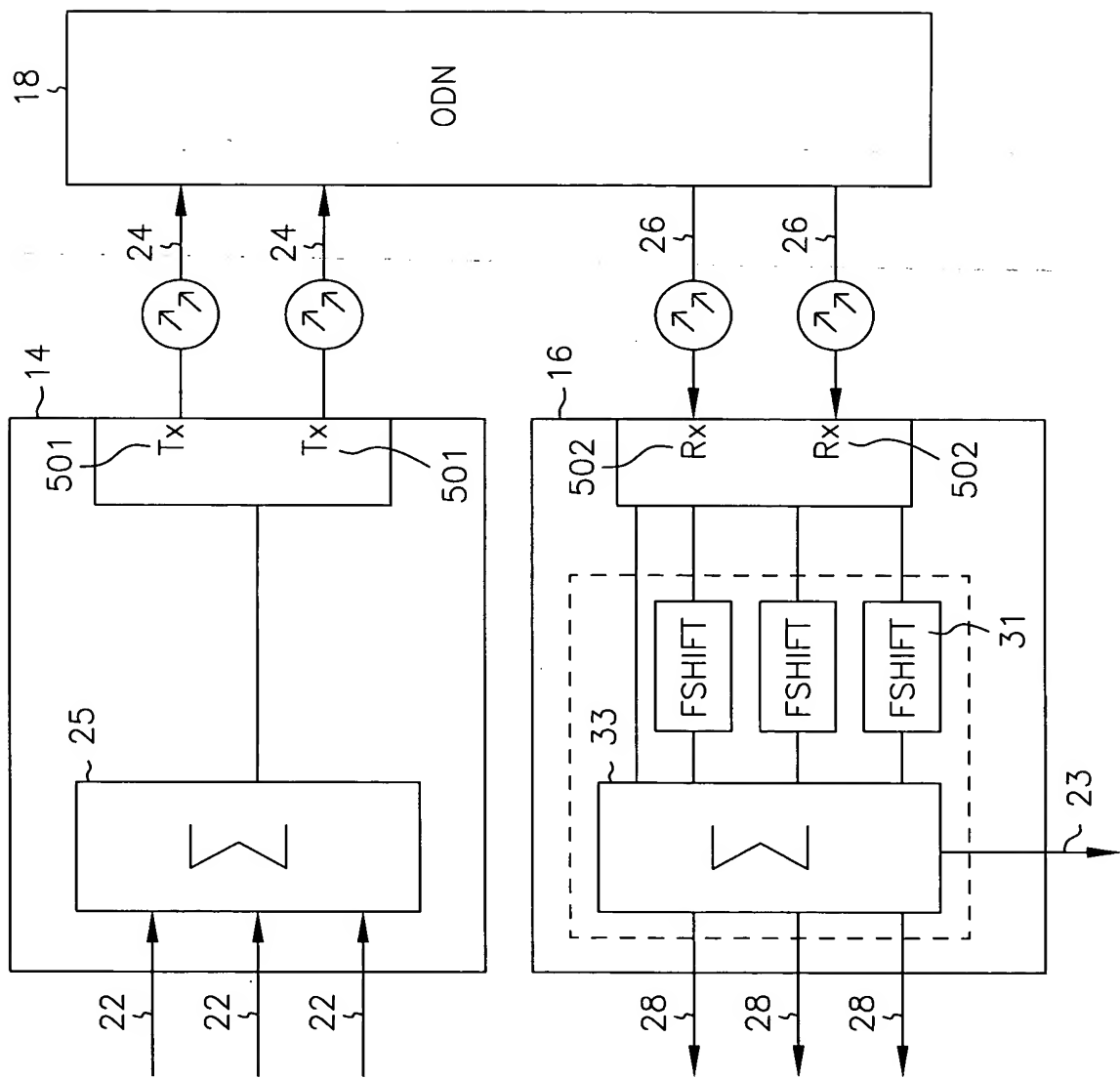


FIG. 4

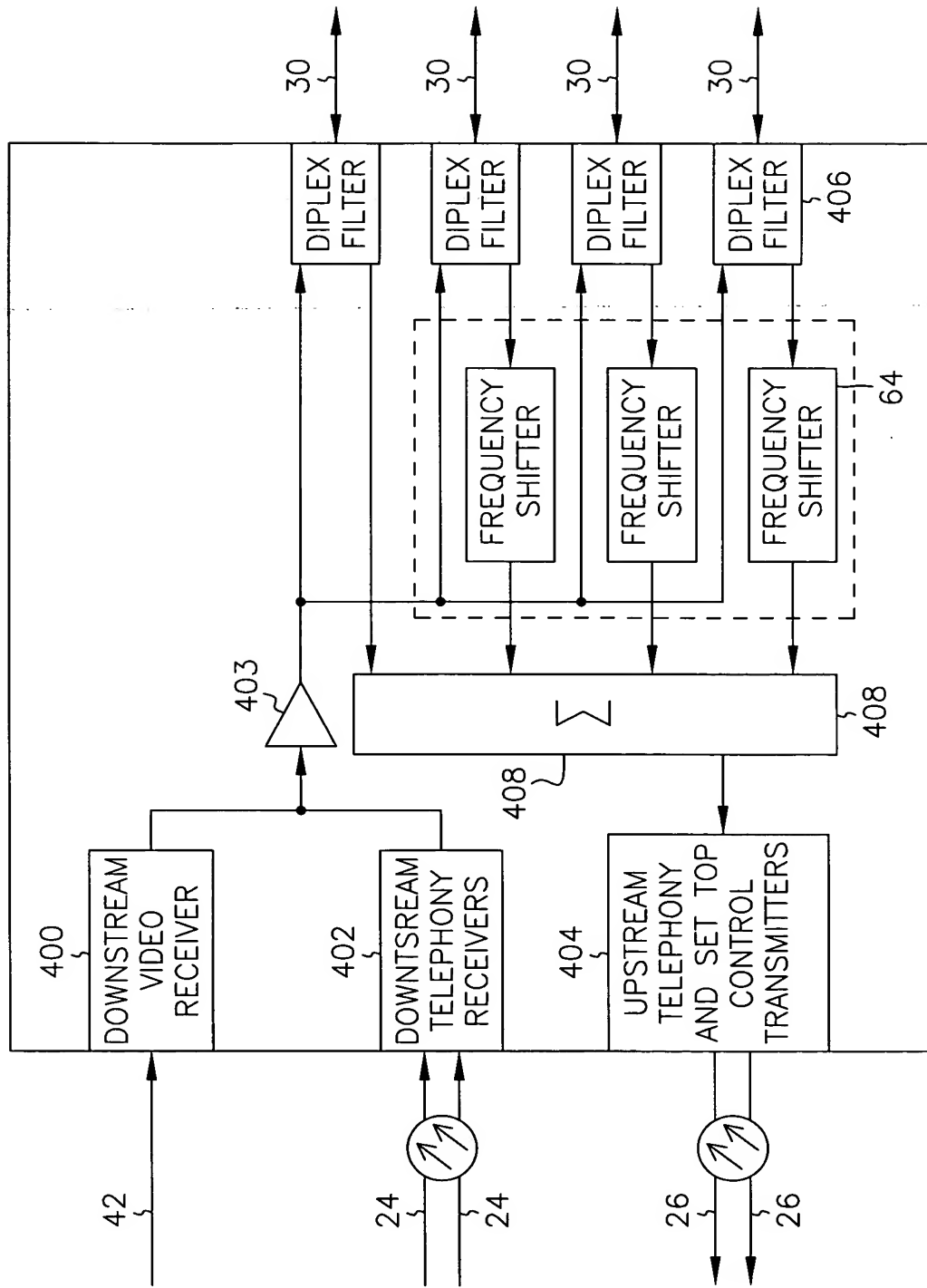


FIG. 5



FIG. 6

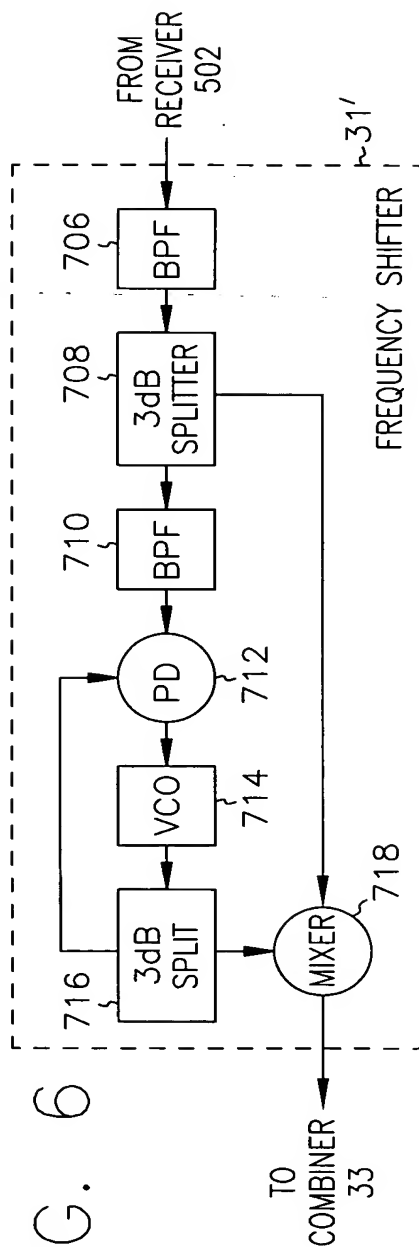
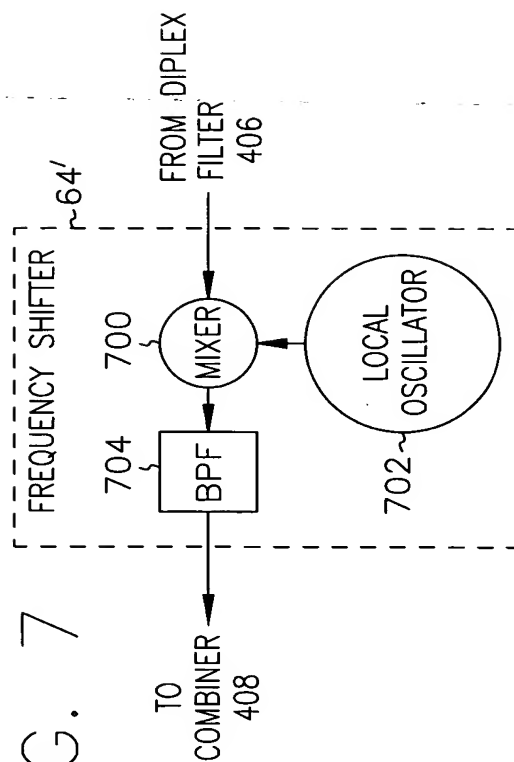


FIG. 7



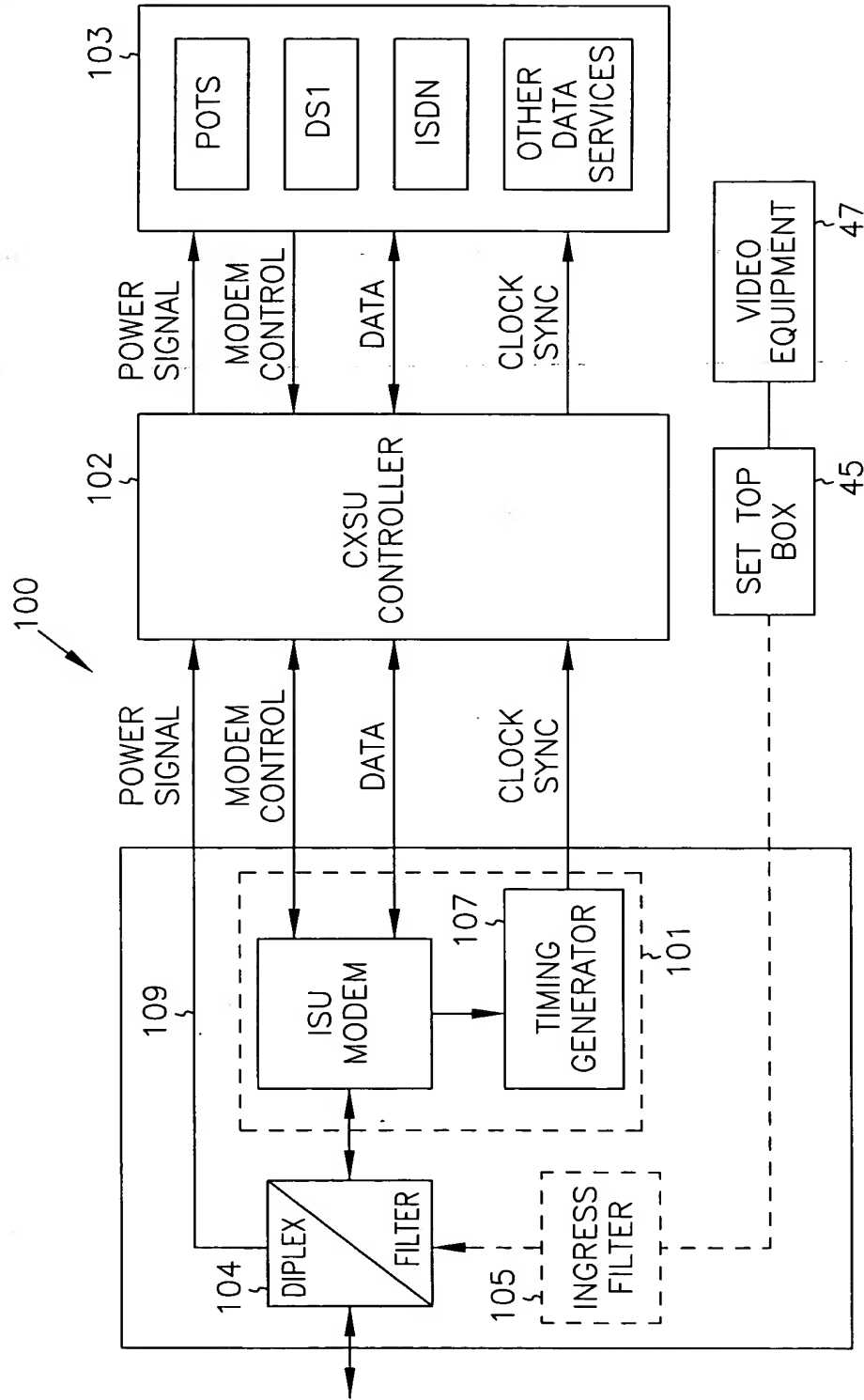


FIG. 8

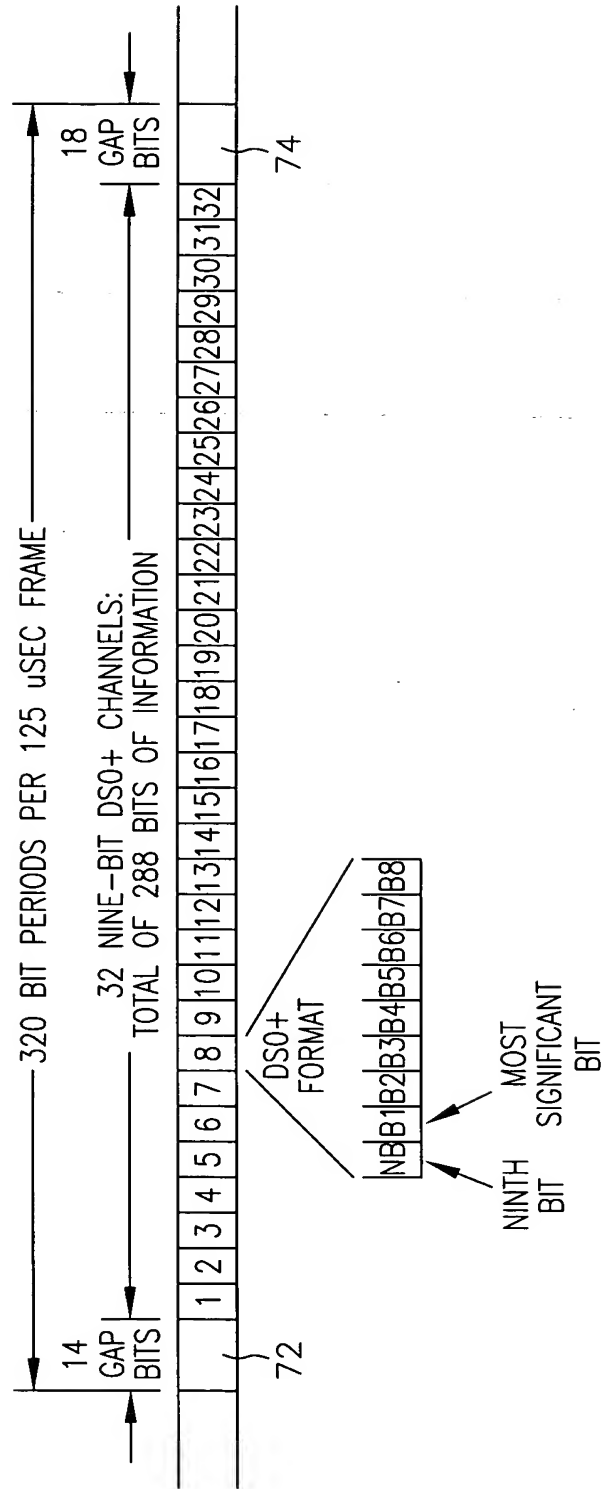


FIG. 9

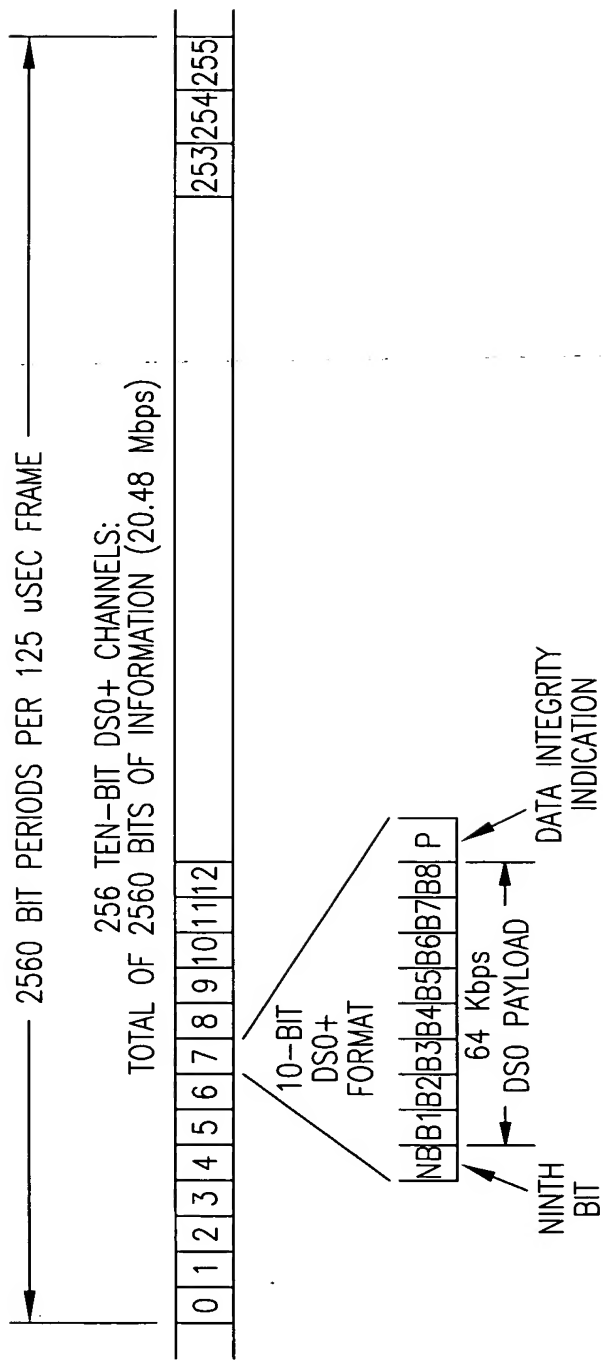


FIG. 10



8KHz FRAMING SIGNAL PROVIDED TO MCC MODULE

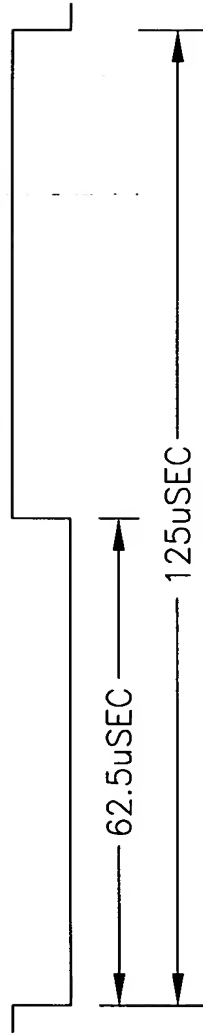


FIG. 11

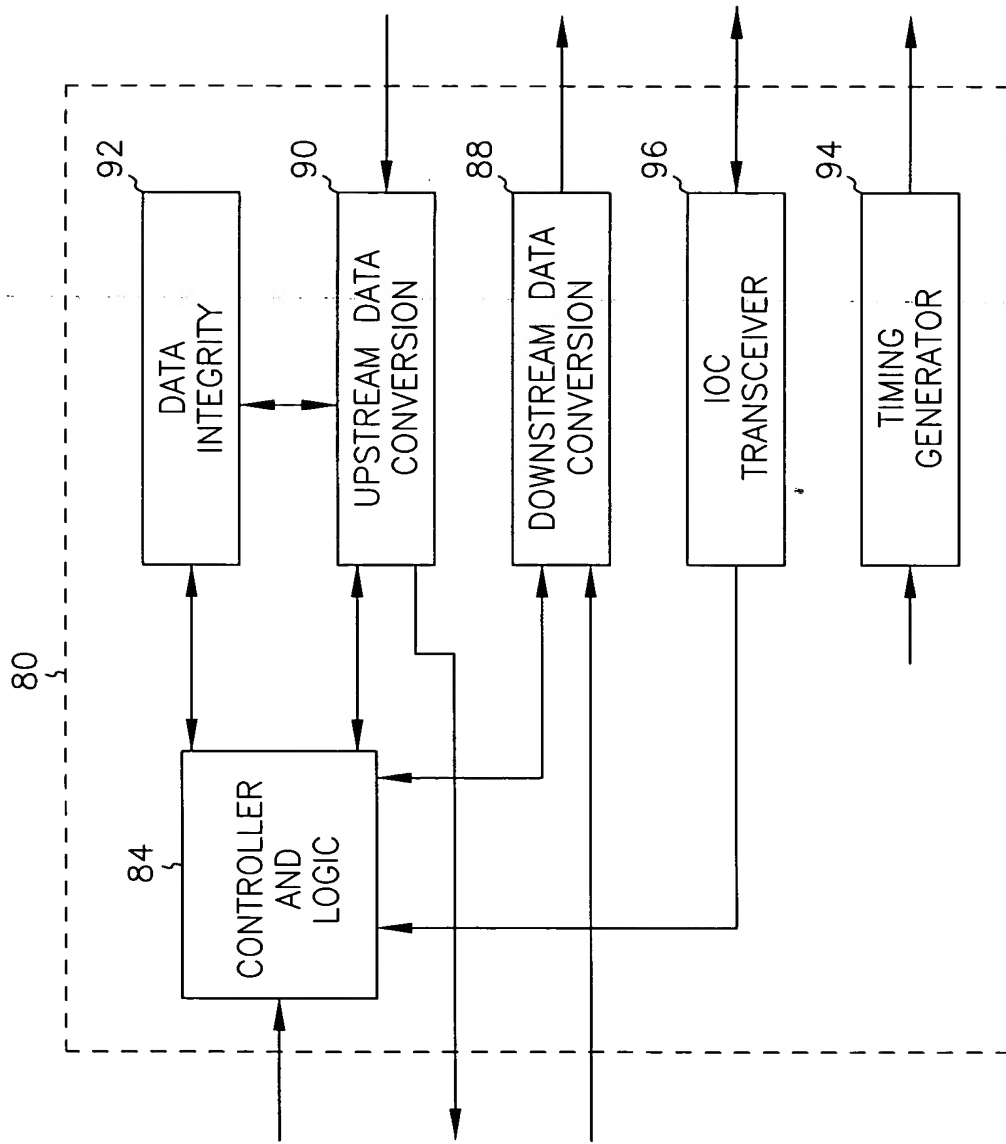


FIG. 12

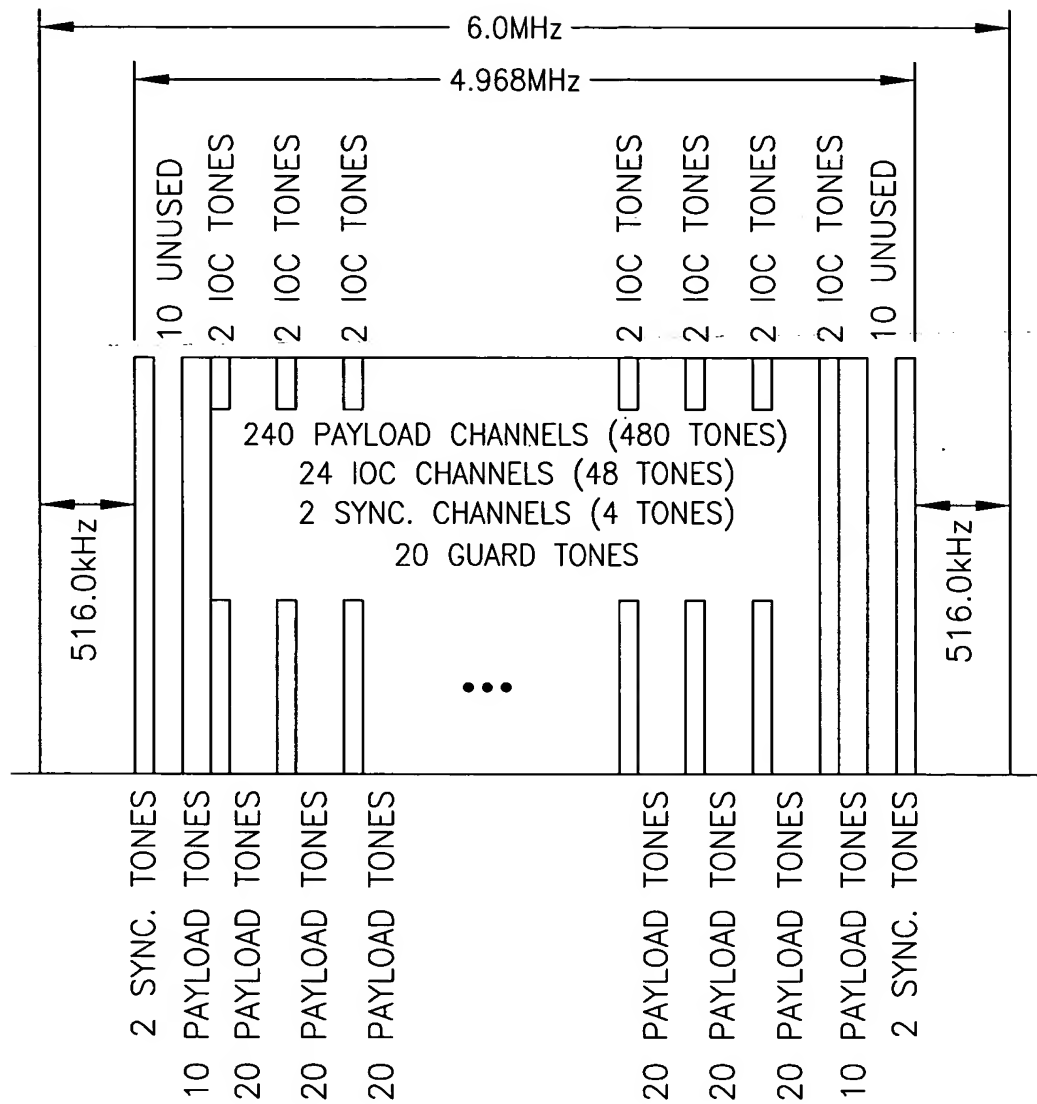


FIG. 13

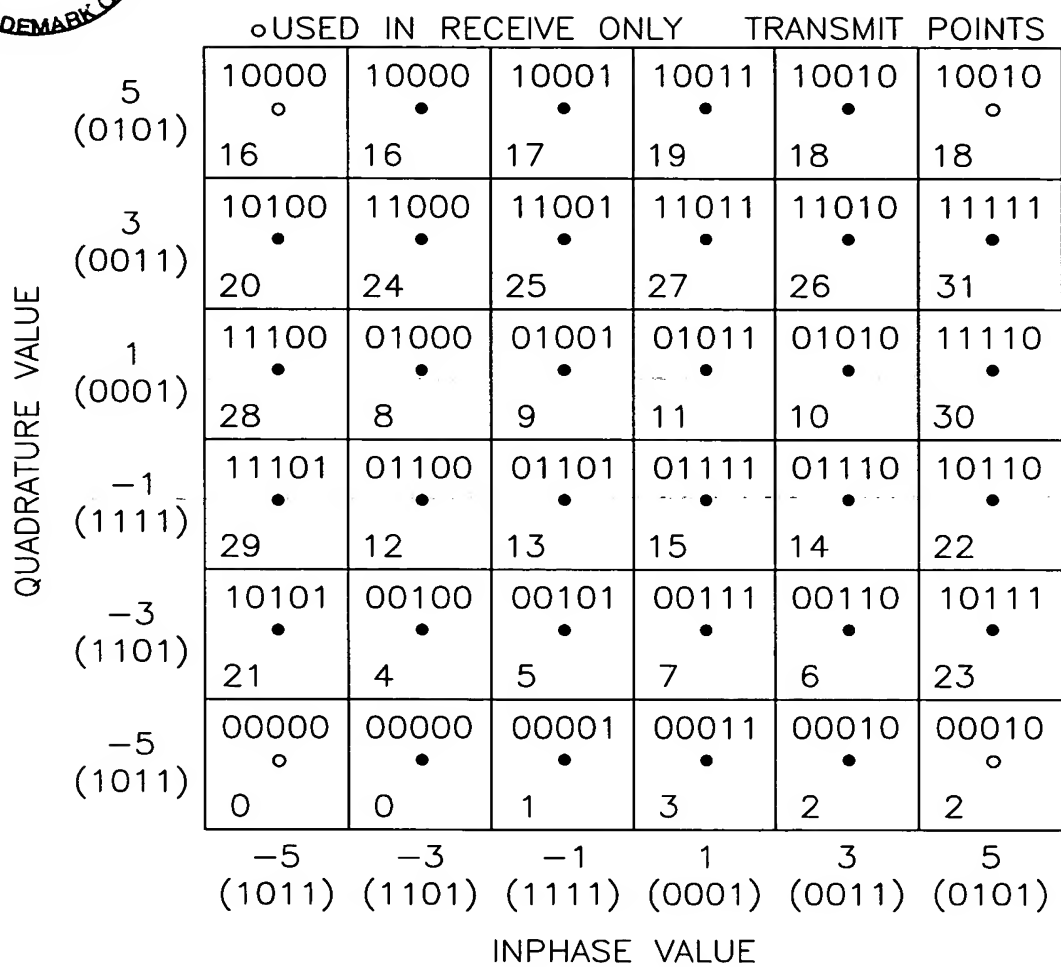


FIG. 14

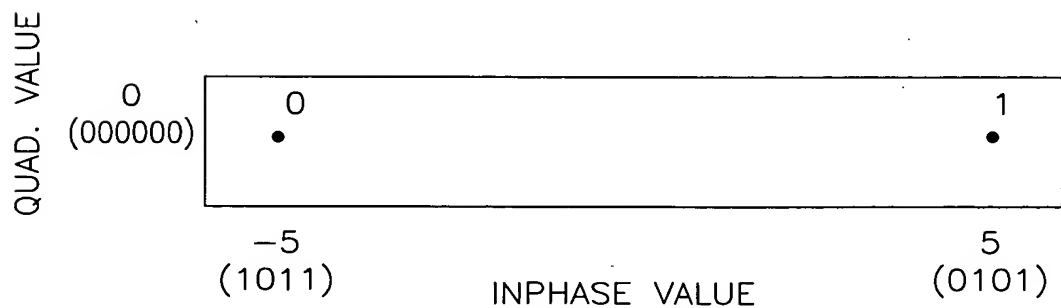


FIG. 15

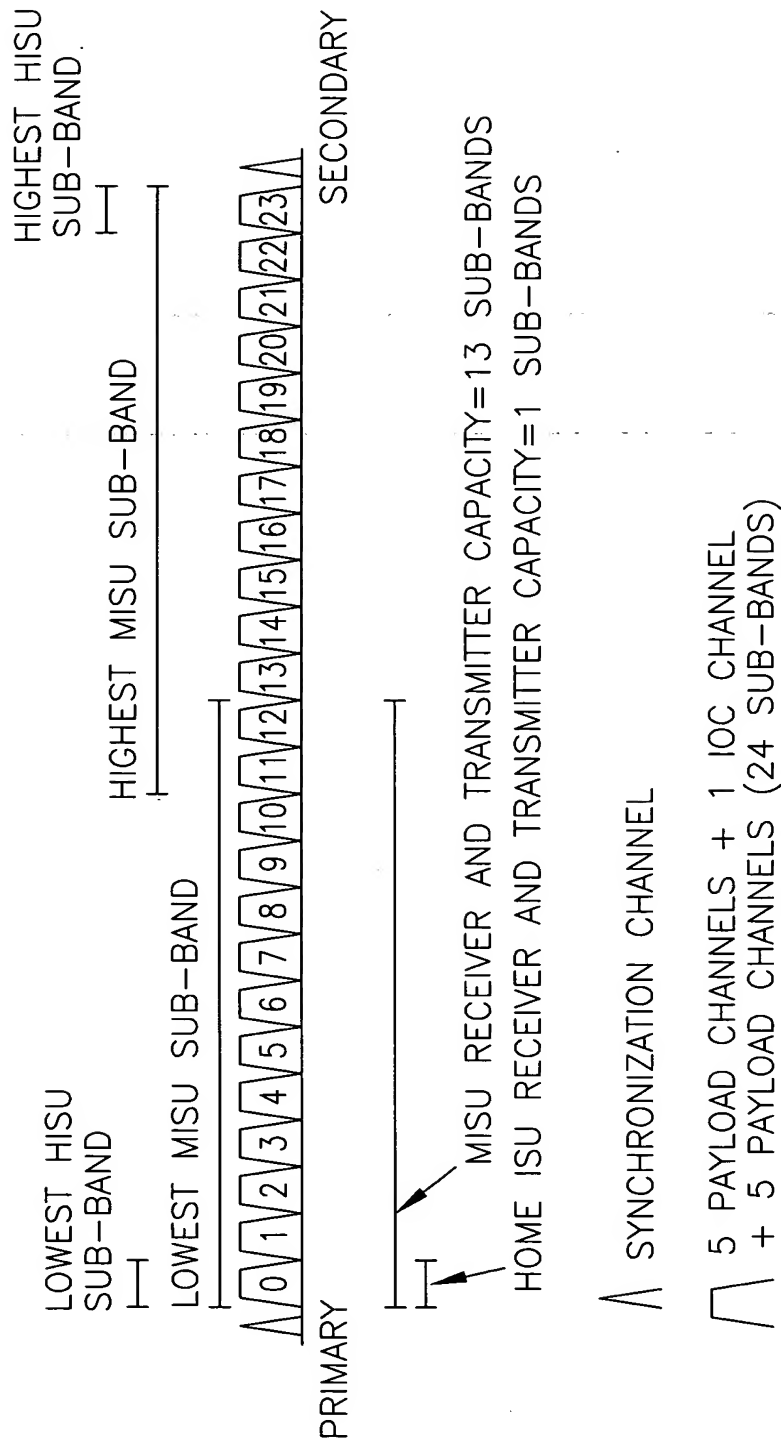


FIG. 16



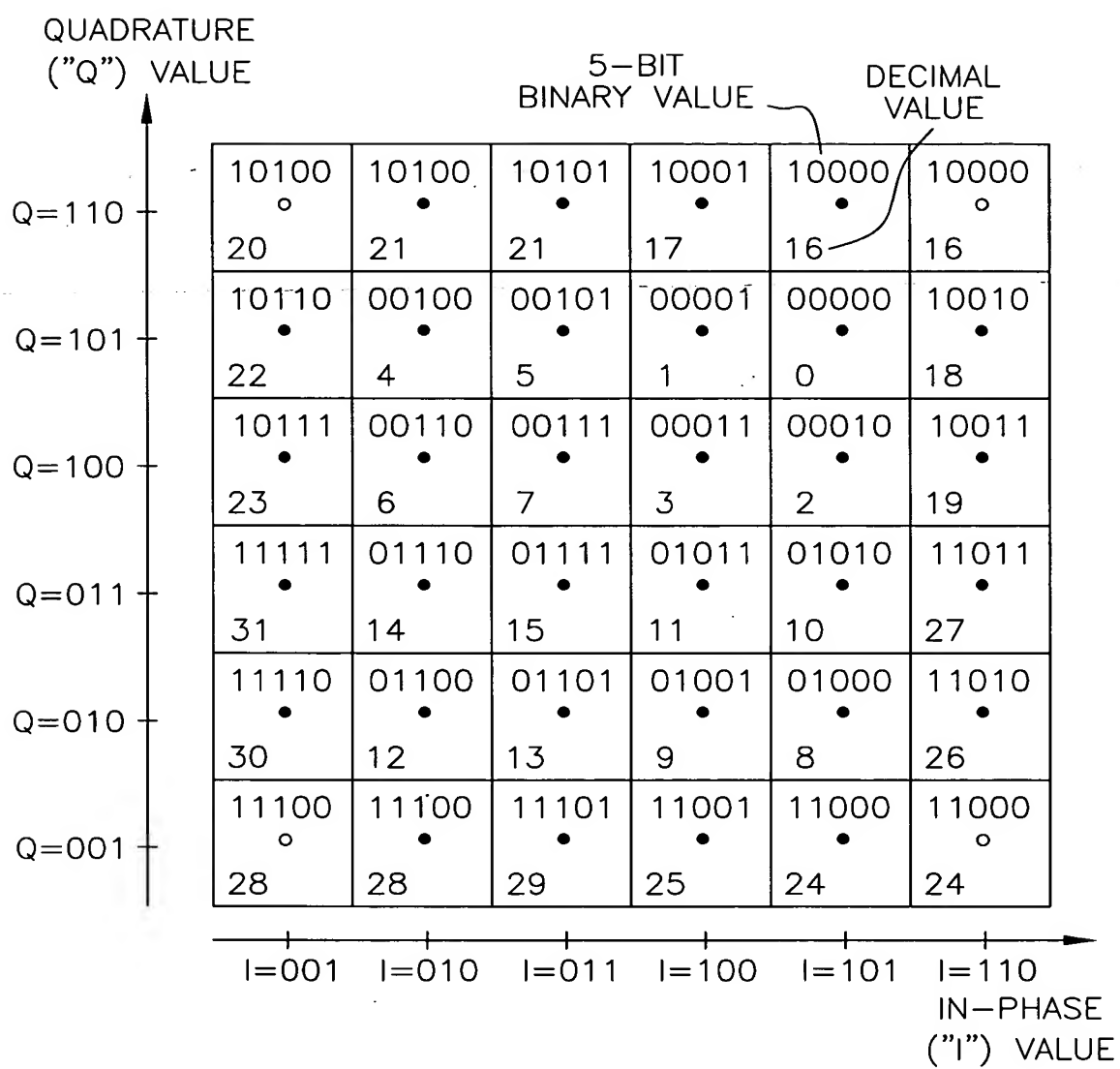
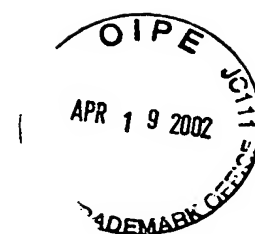


FIG. 17

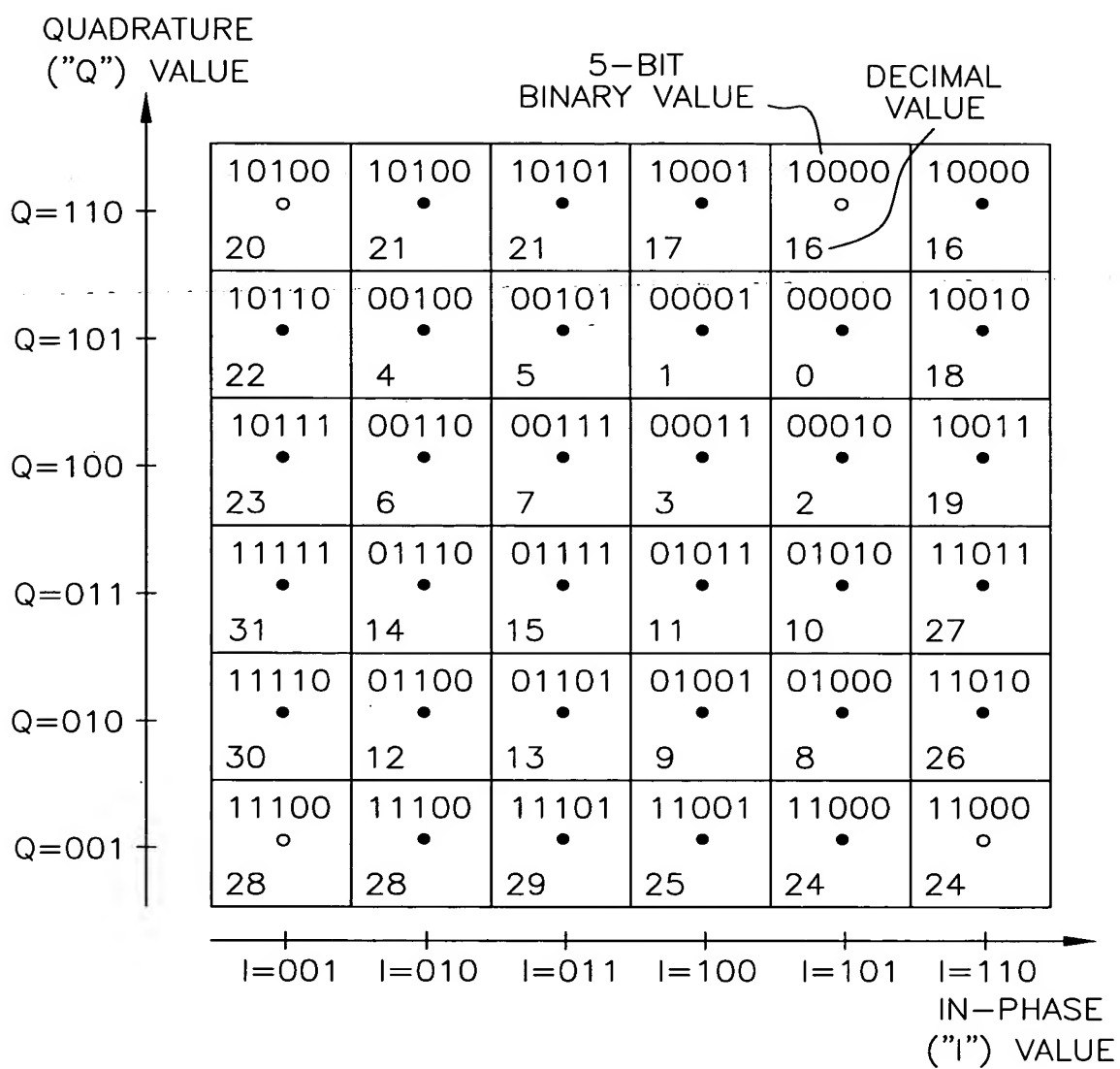


FIG. 18

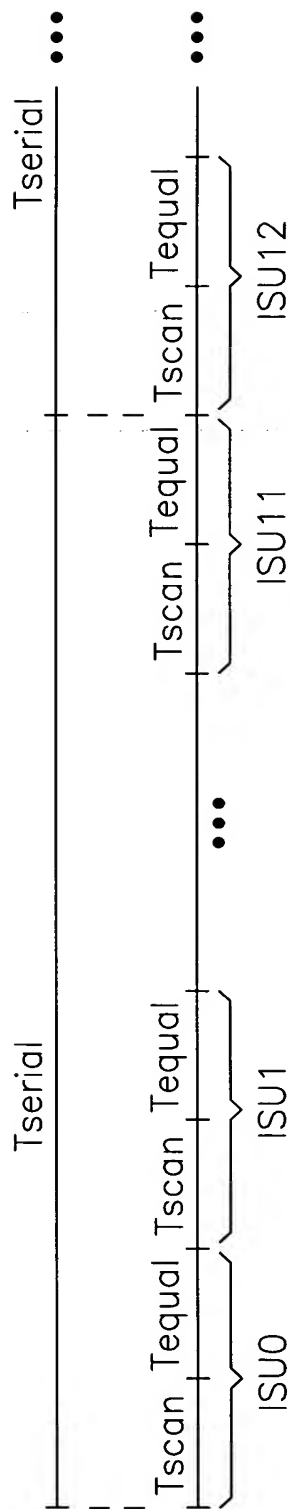


FIG. 19

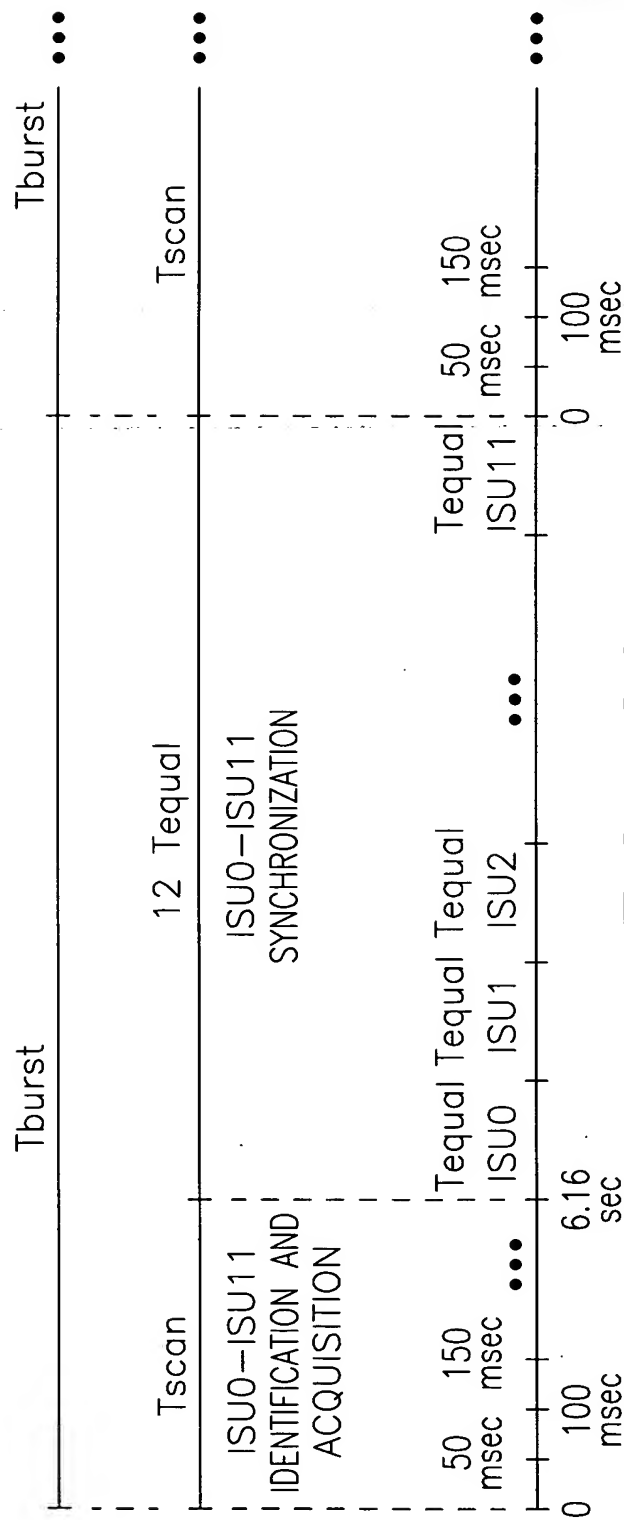


FIG. 20



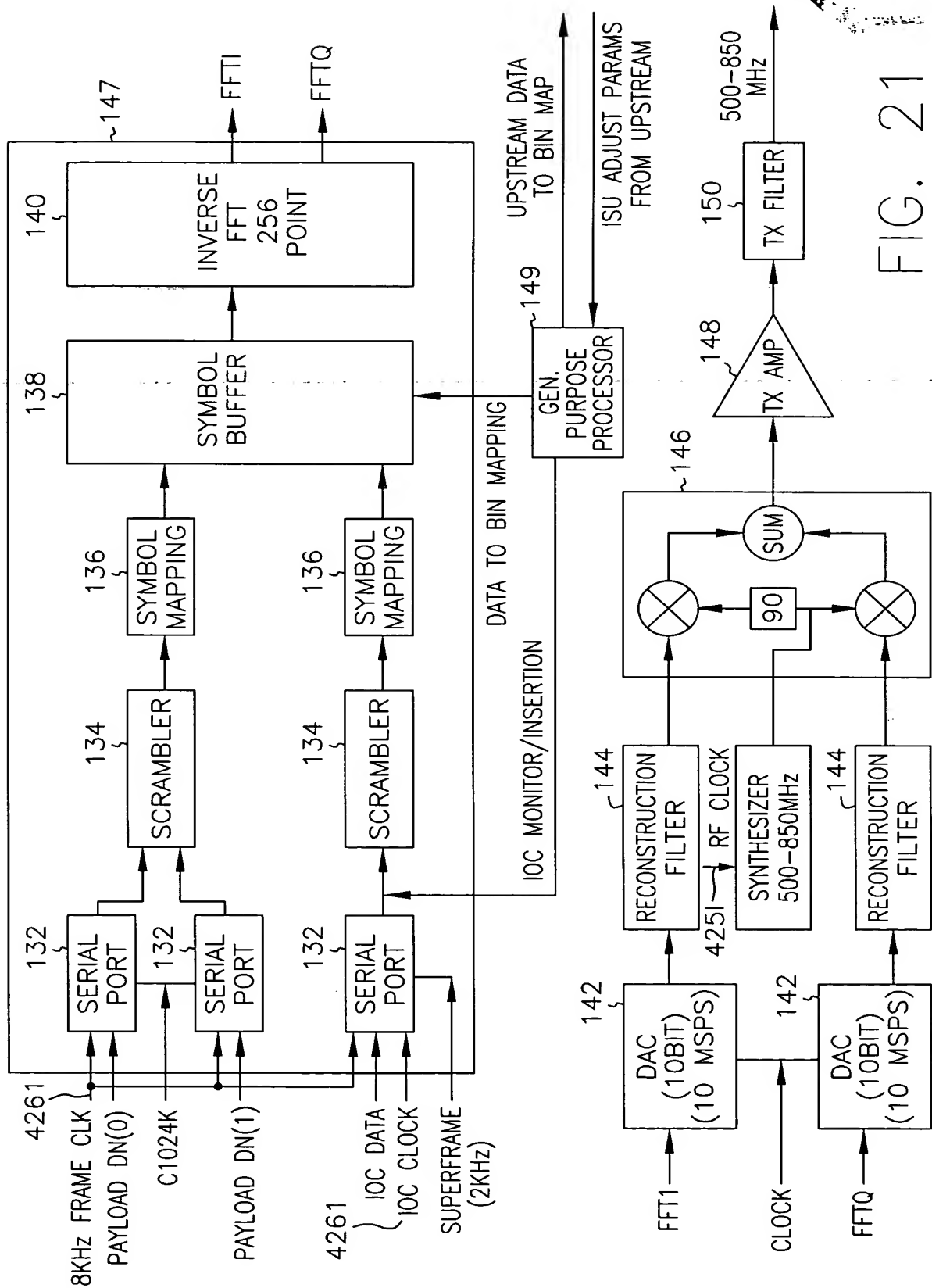


FIG. 21

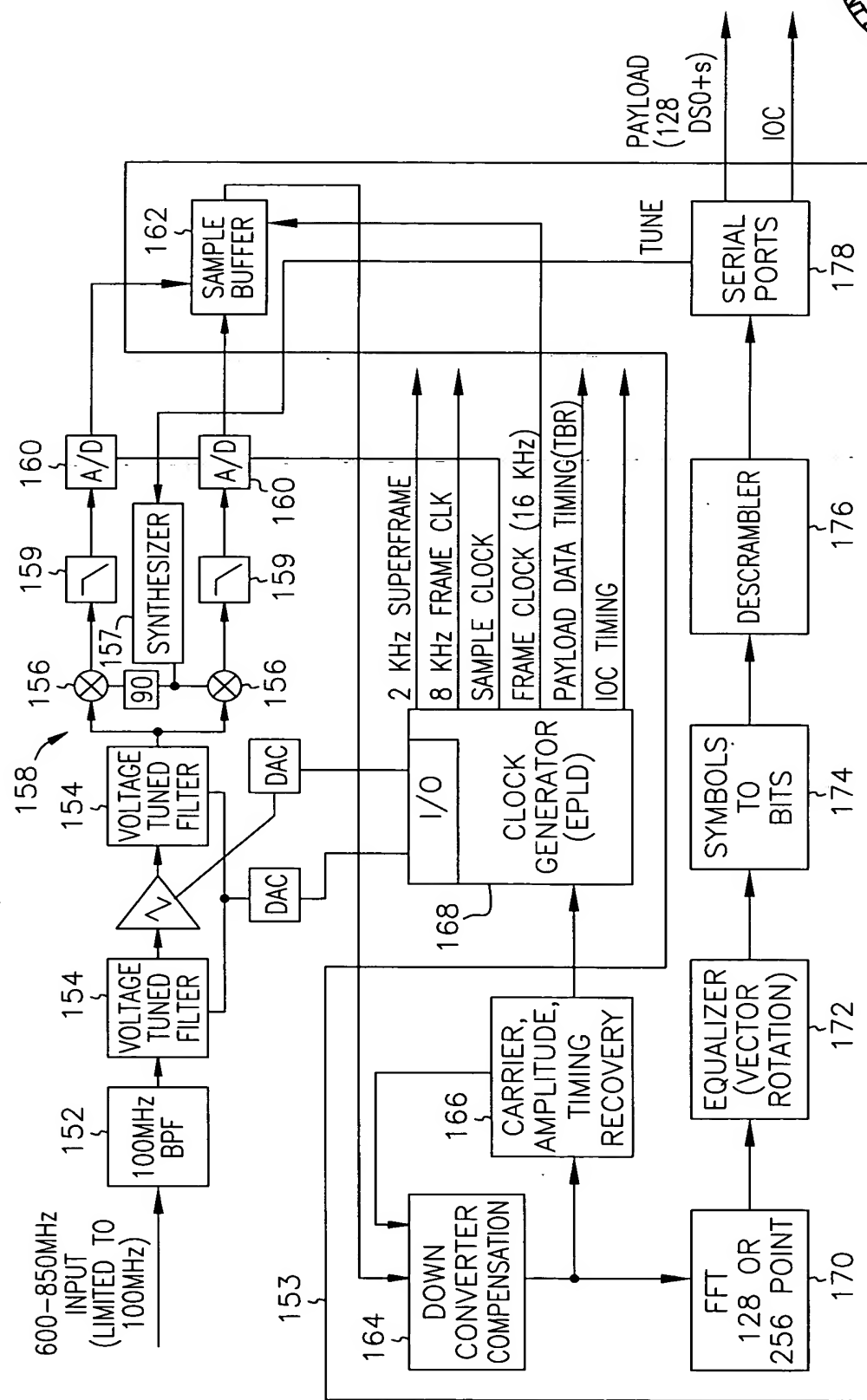


FIG. 22

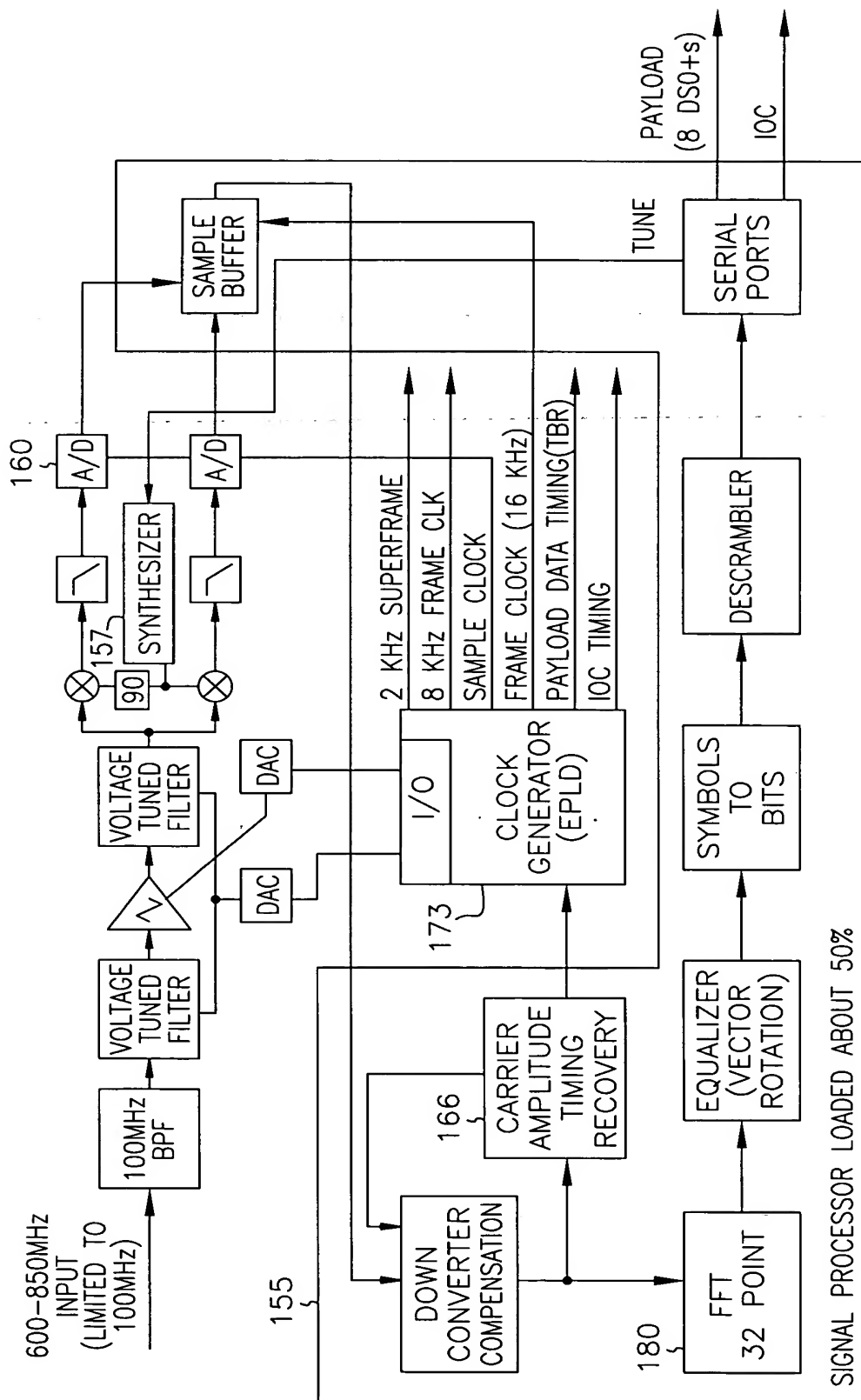


FIG. 23

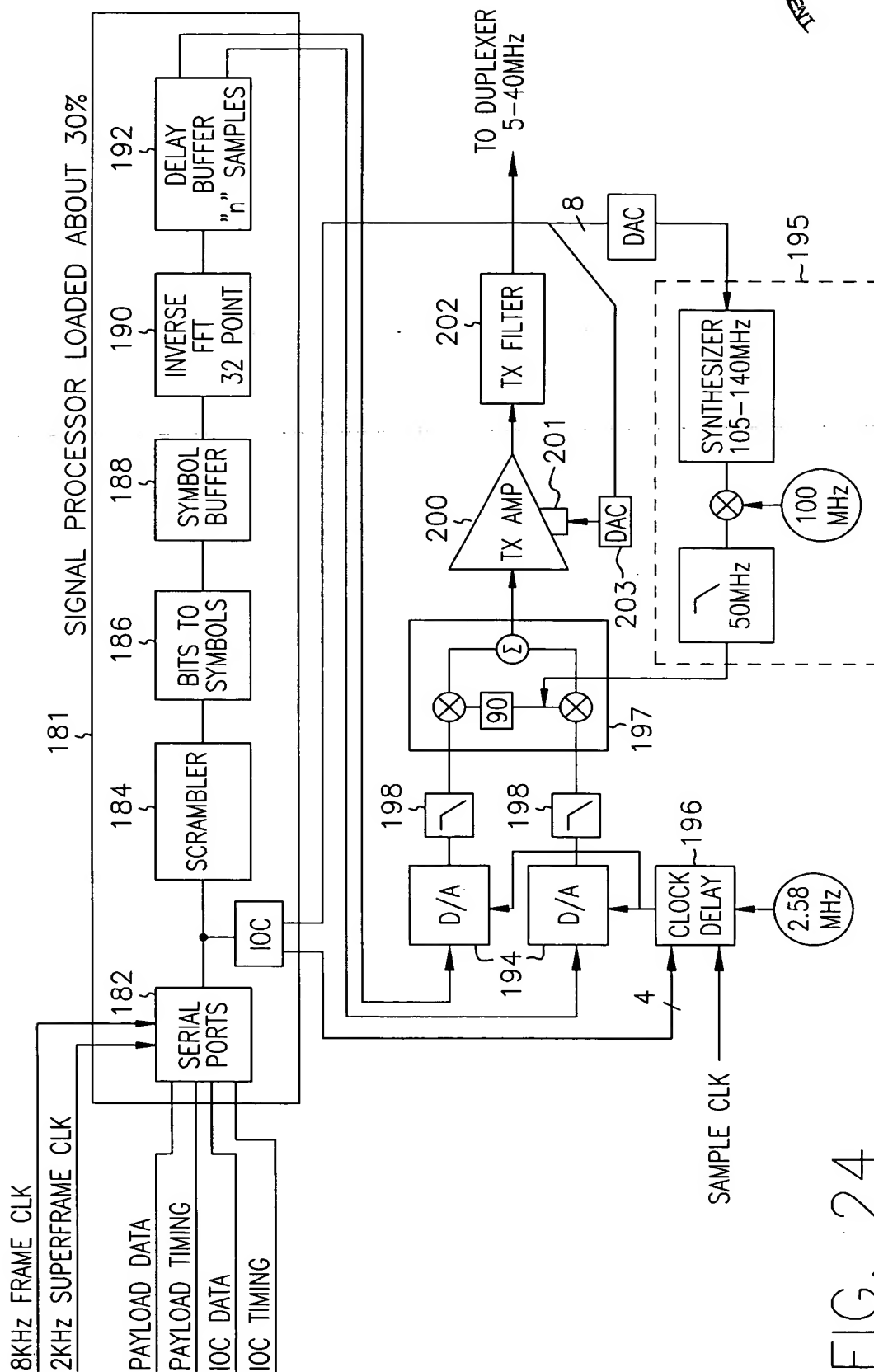


FIG. 24

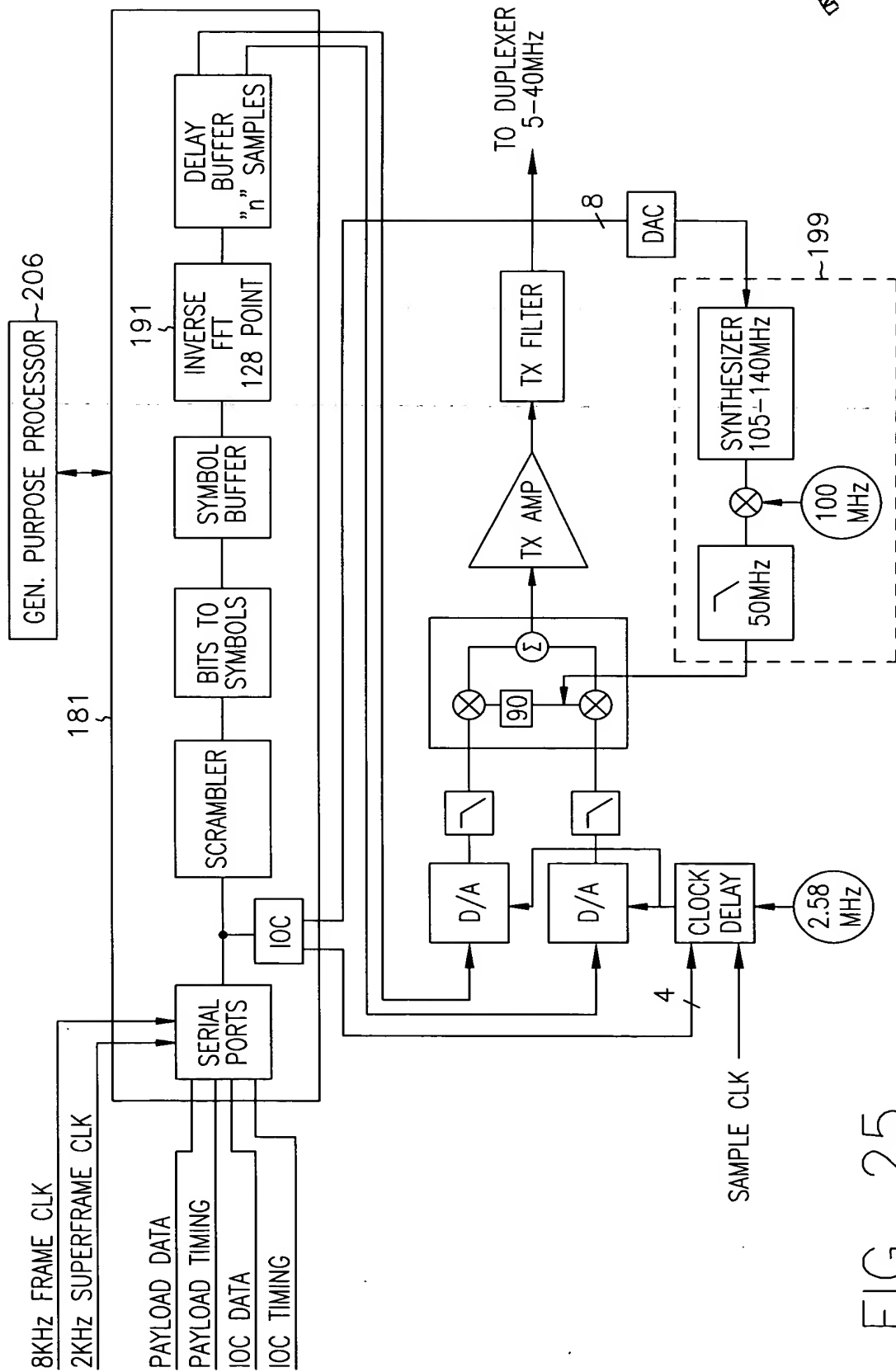


FIG. 25



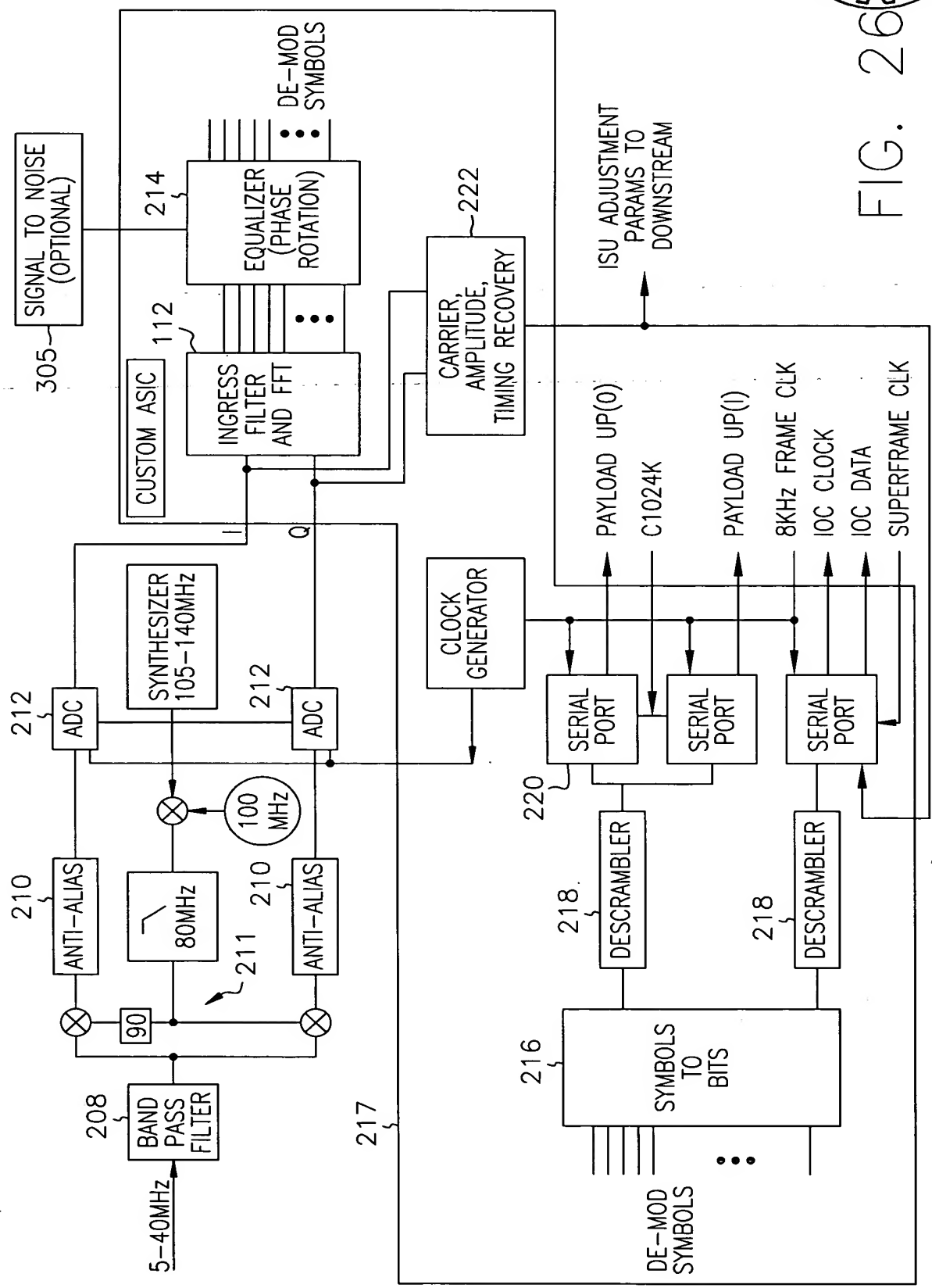
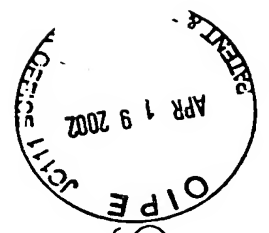


FIG. 26



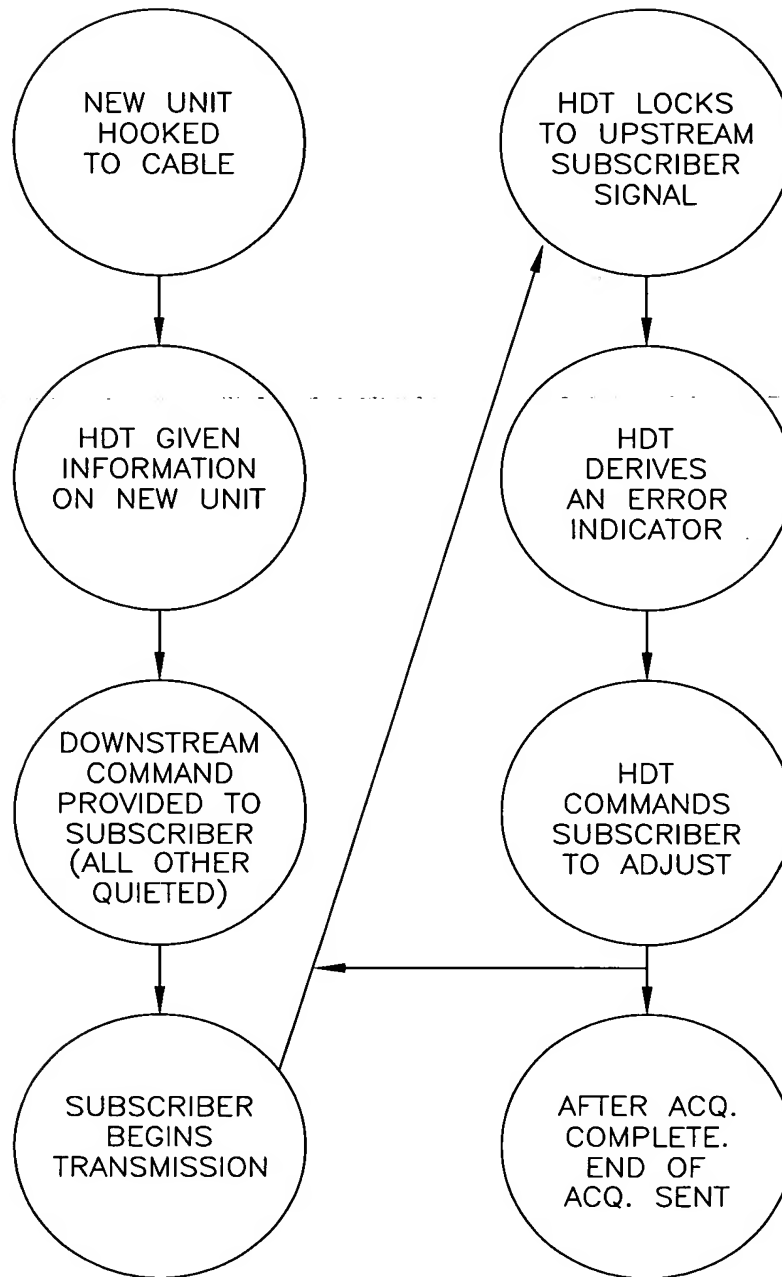


FIG. 27

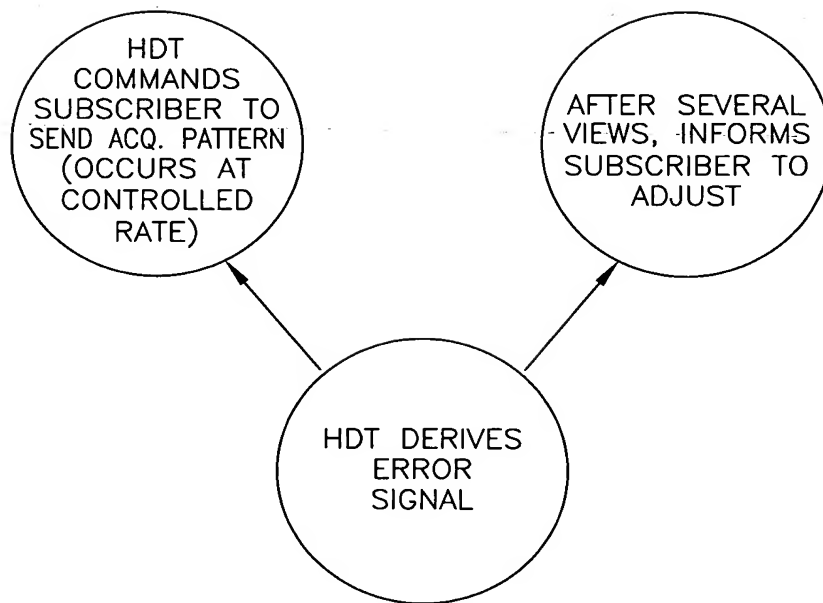


FIG. 28

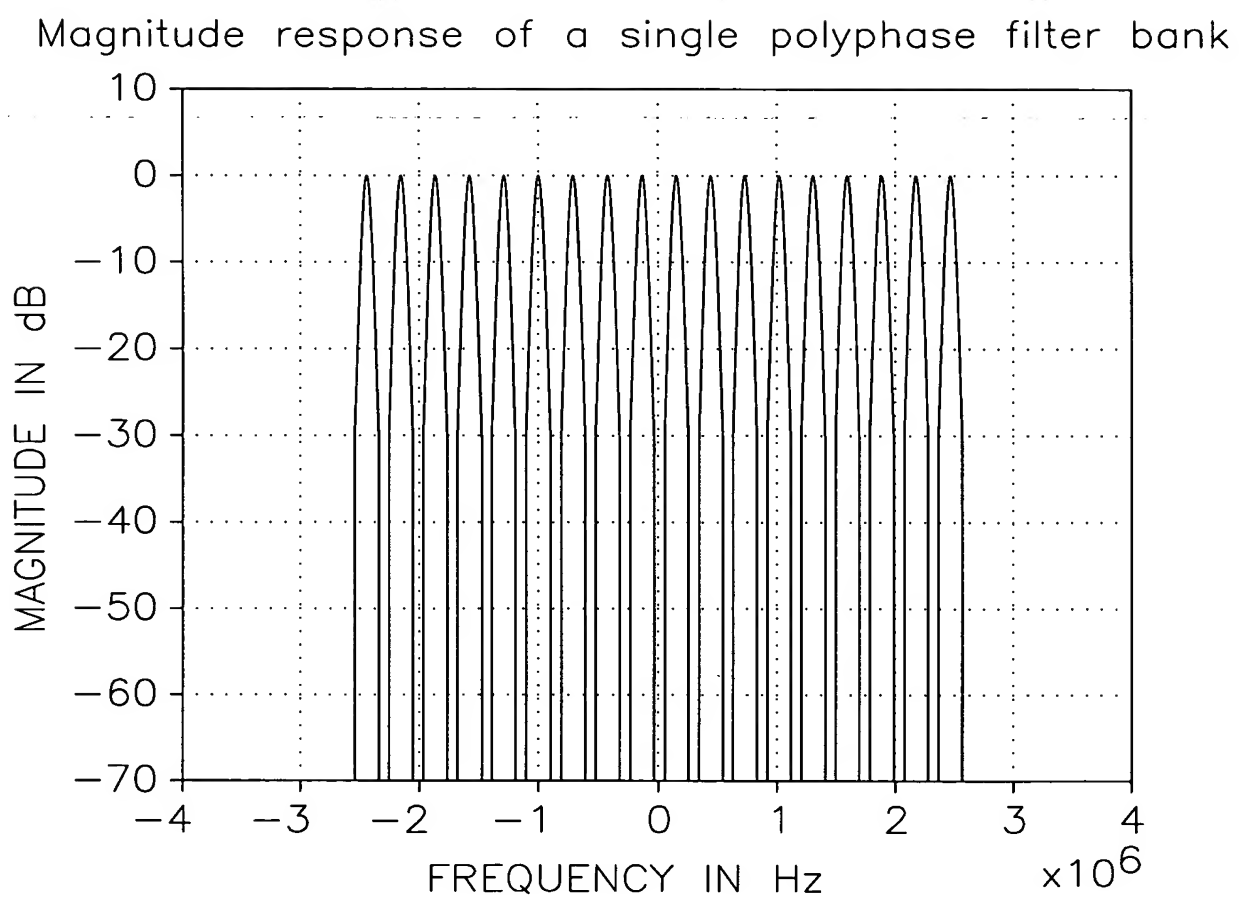


FIG. 29

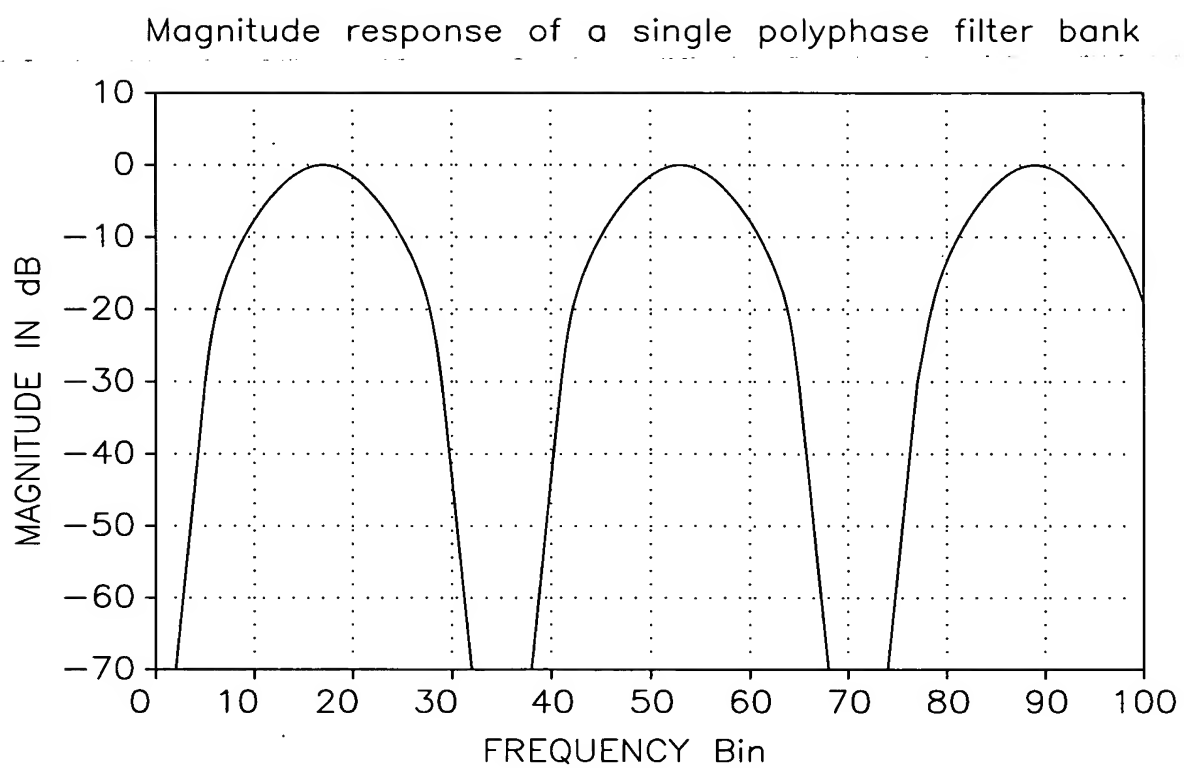


FIG. 30

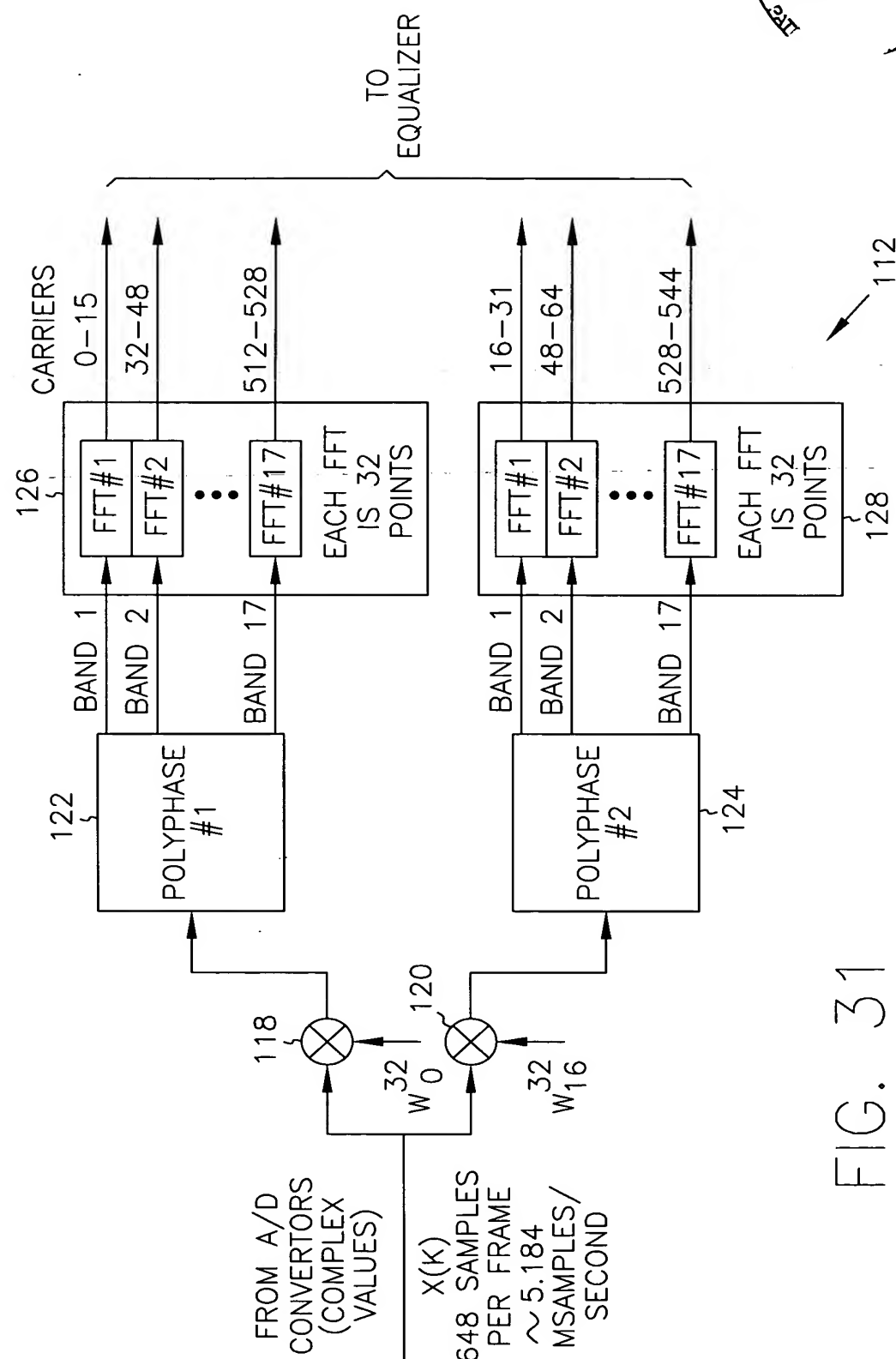


FIG. 31

SAMPLE RATE=
5.184 MSAMPLES
PER SECOND
648 SAMPLES
PER FRAME

TRANSFORM RATE=
288 KHz

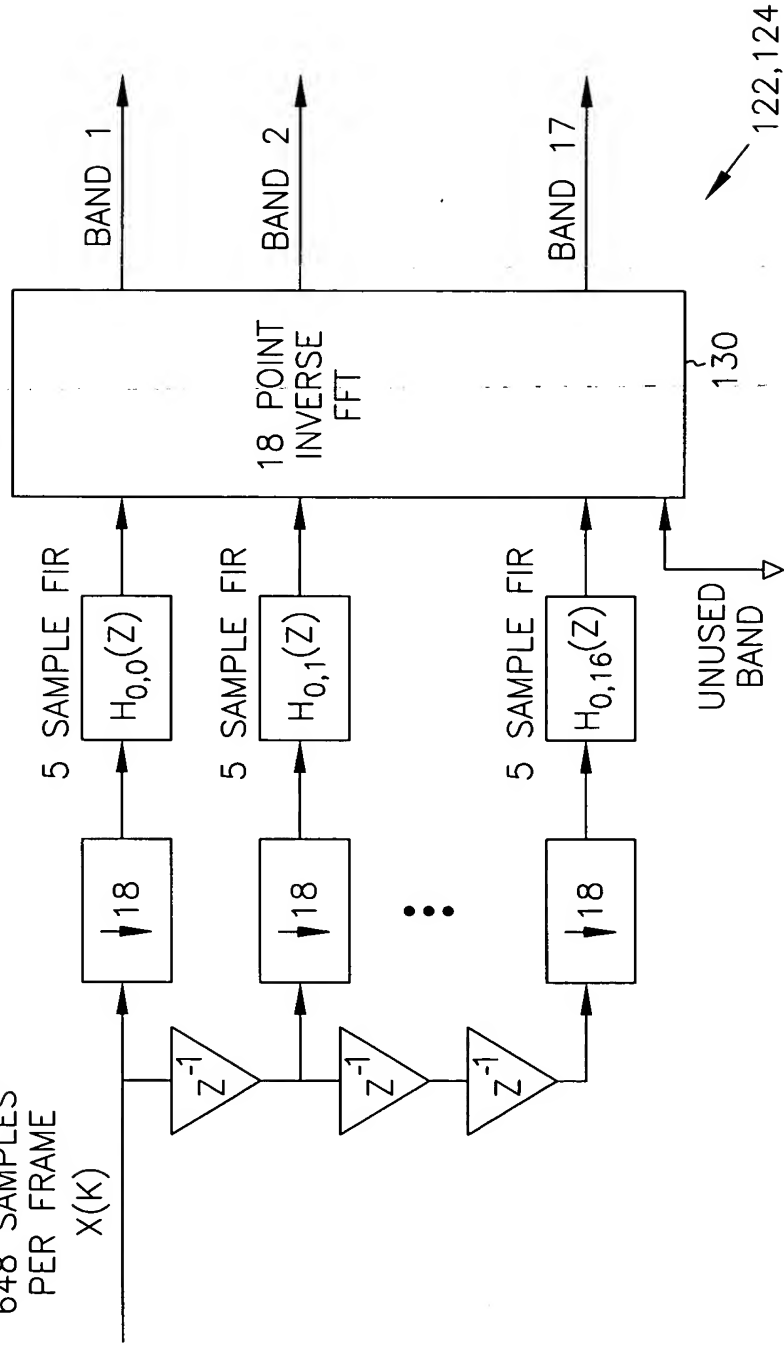
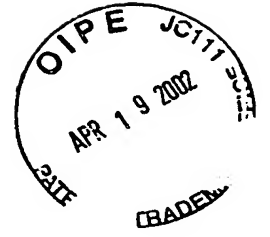
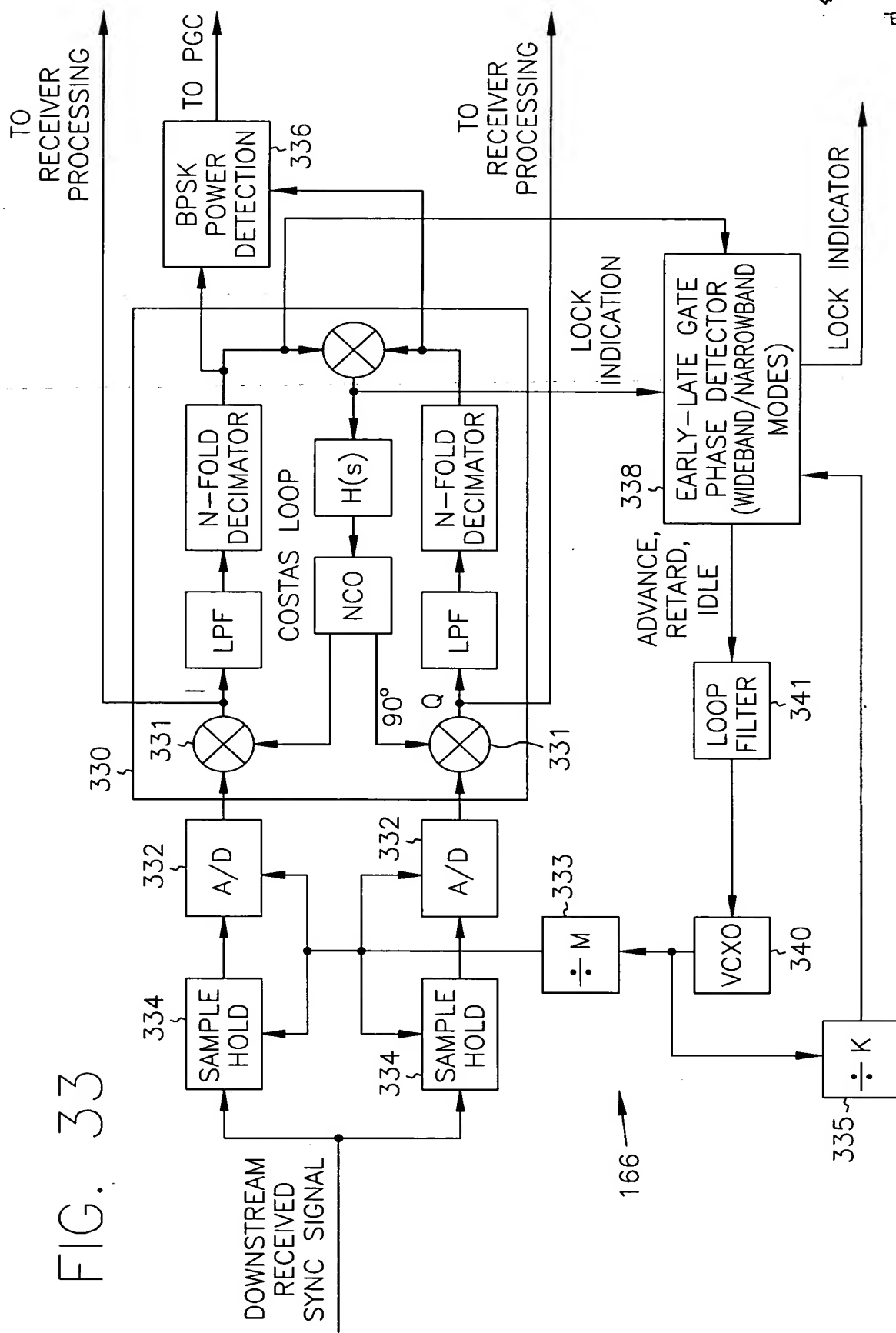


FIG. 32





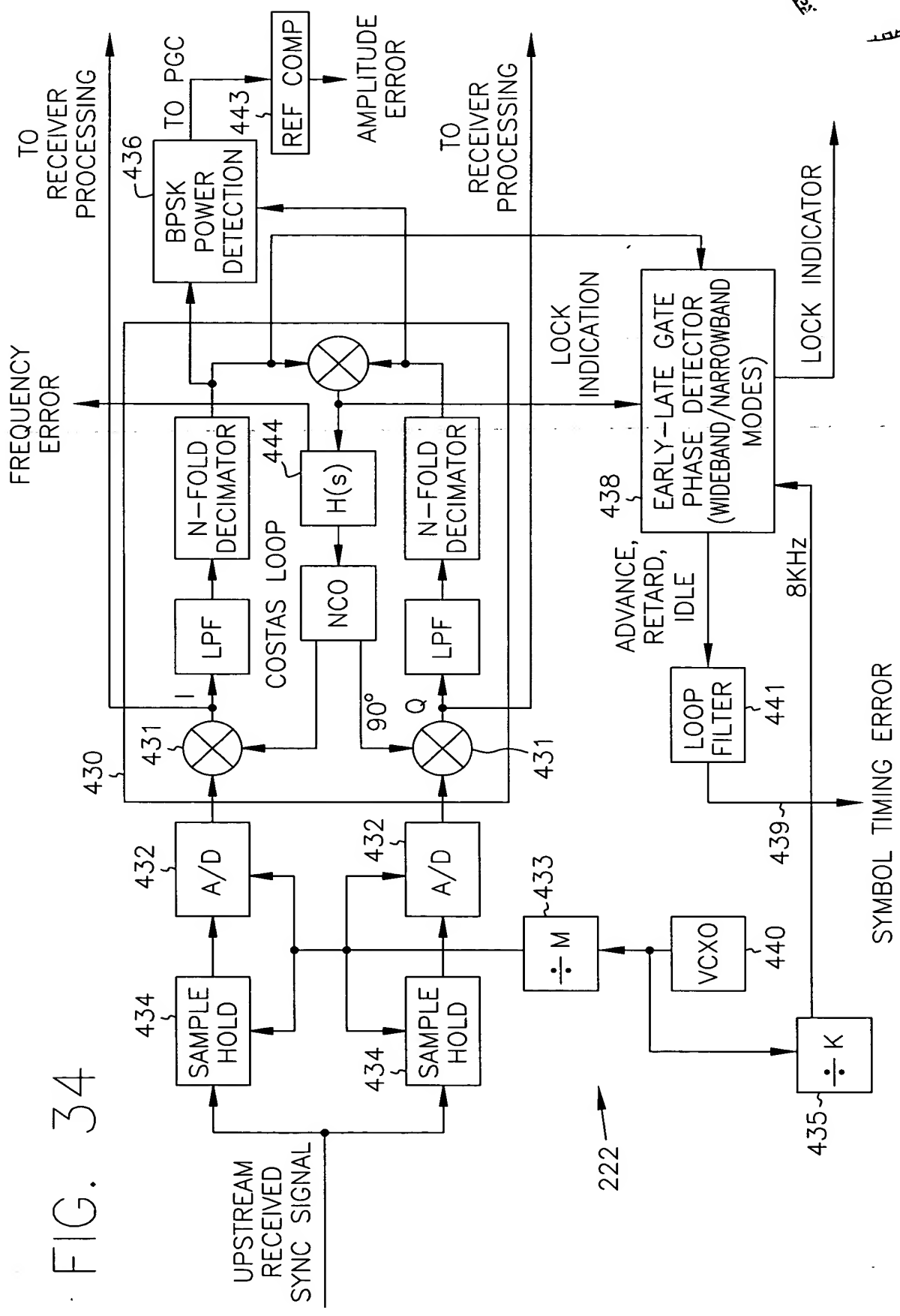


FIG. 34

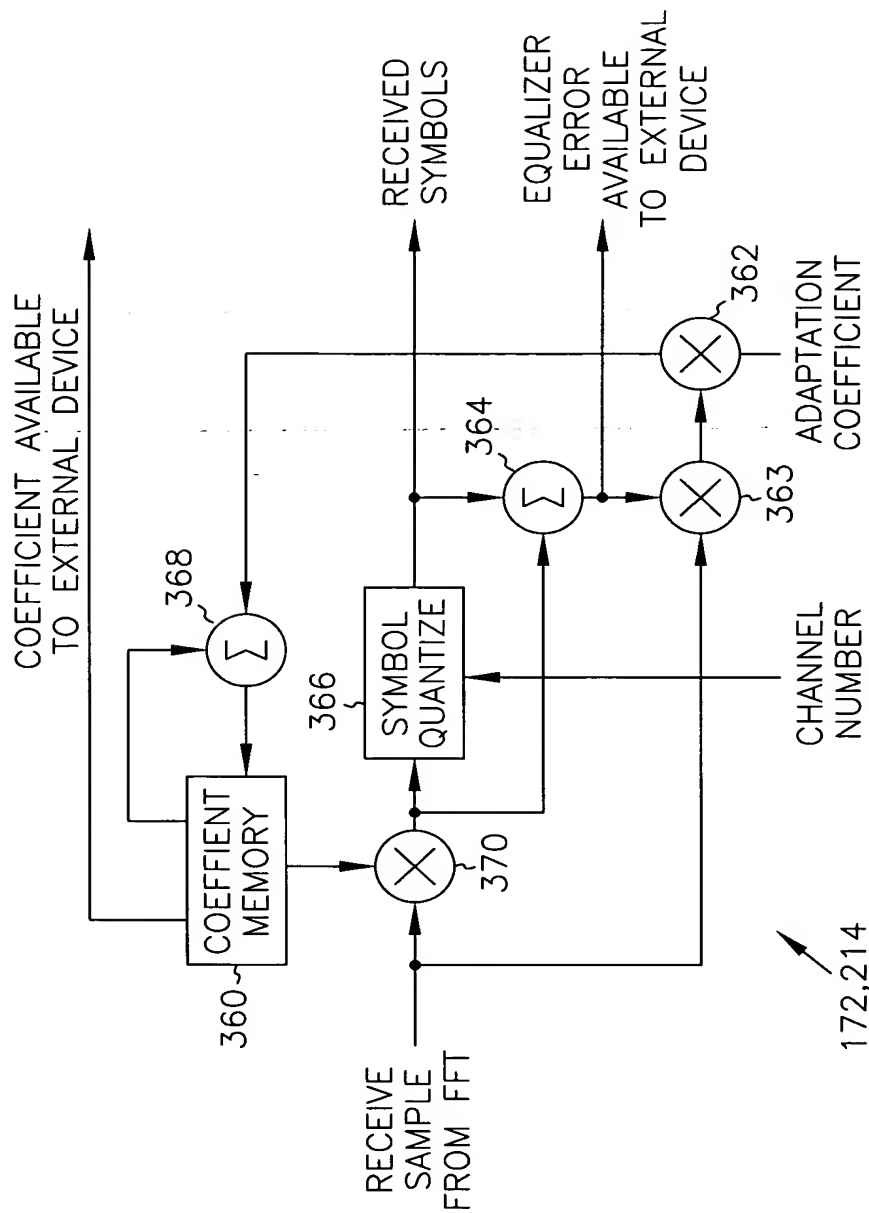


FIG. 35

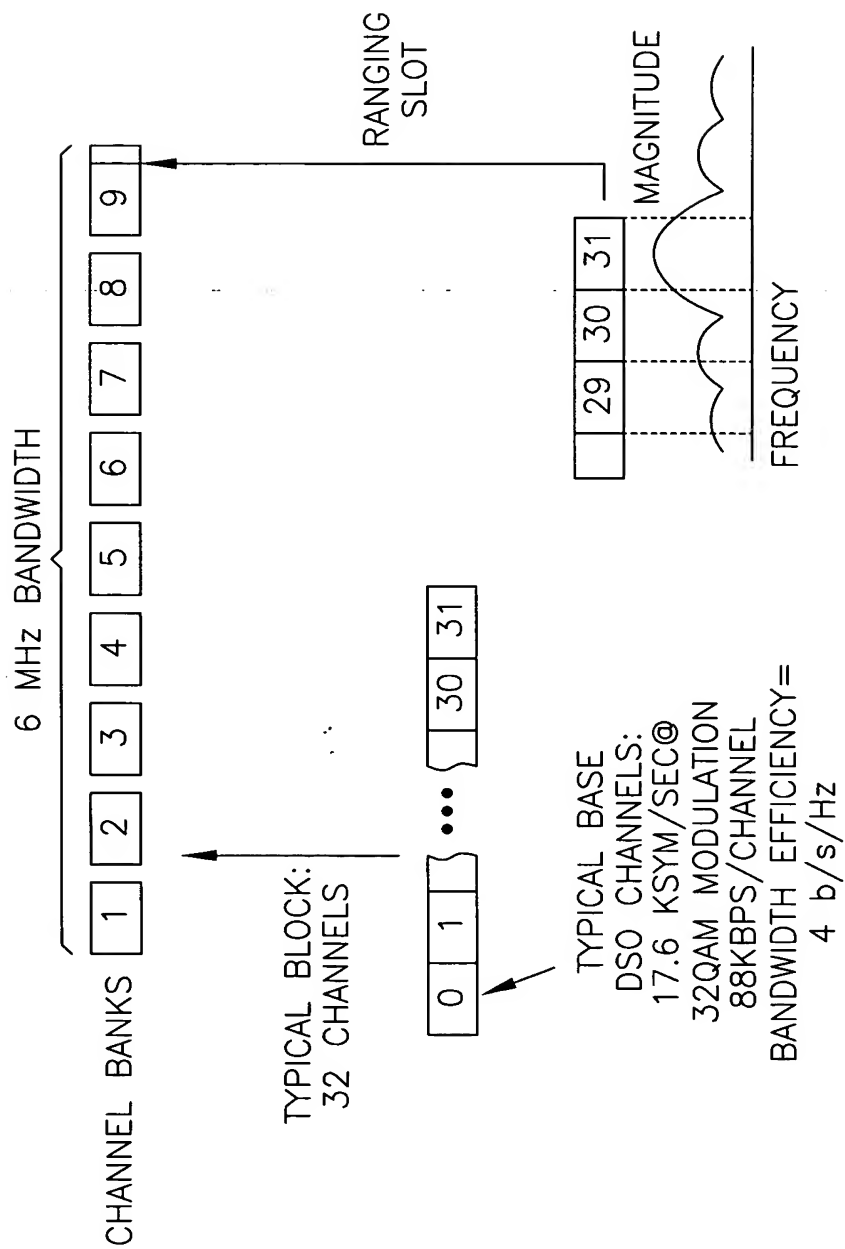
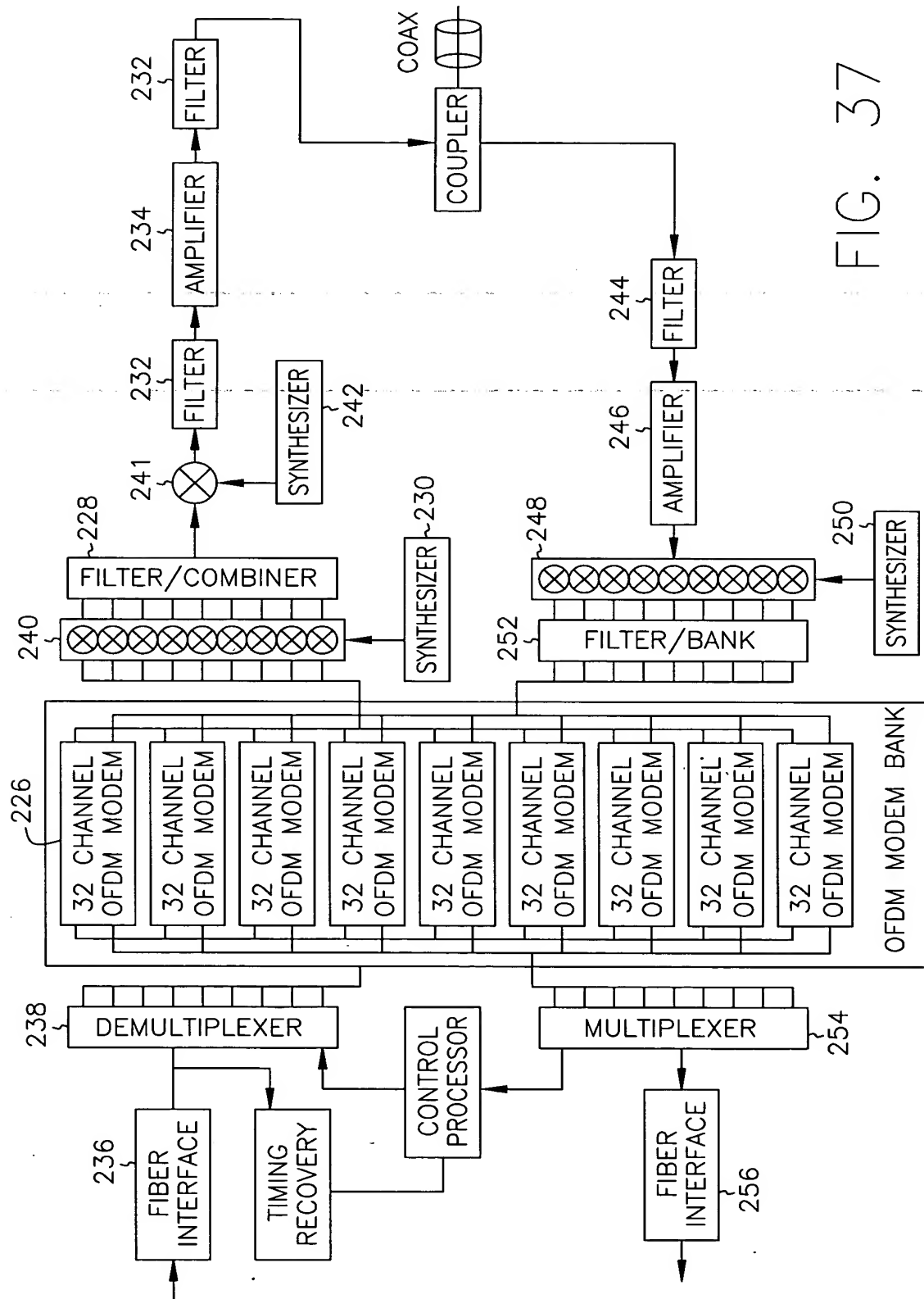
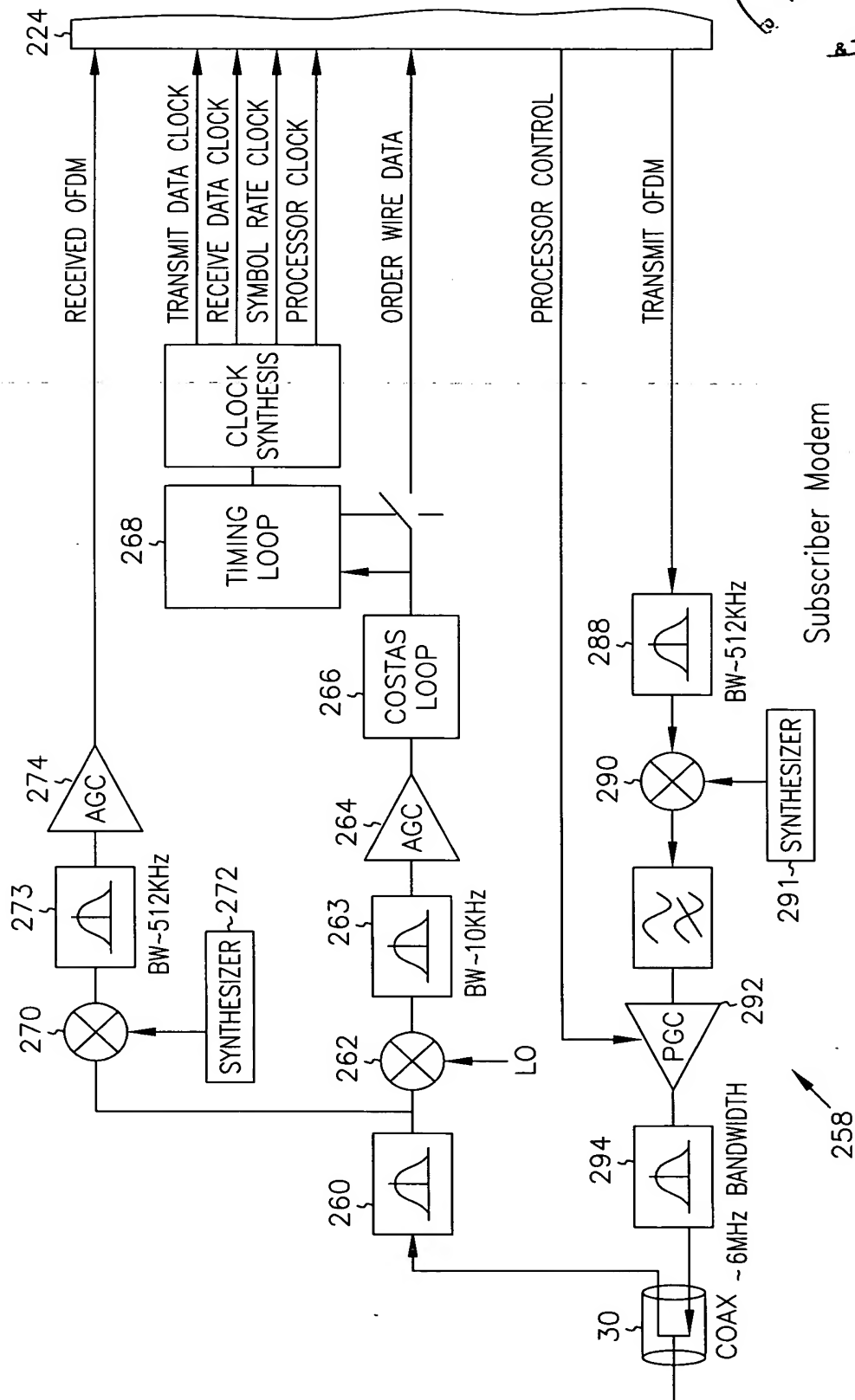


FIG. 36

OIPE JCT117-000000
APR 19 2002





Subscriber Modem

FIG. 38

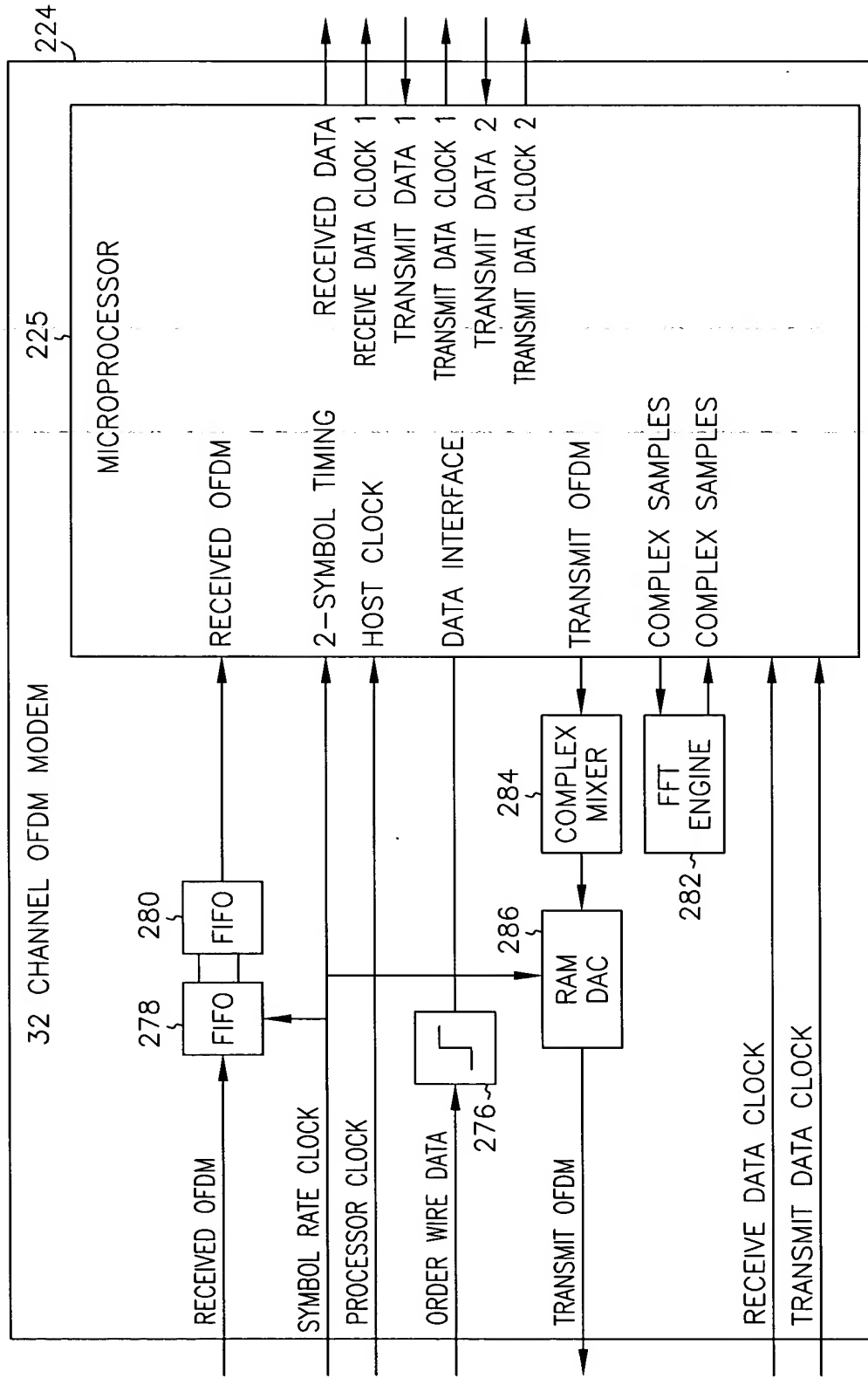


FIG. 39

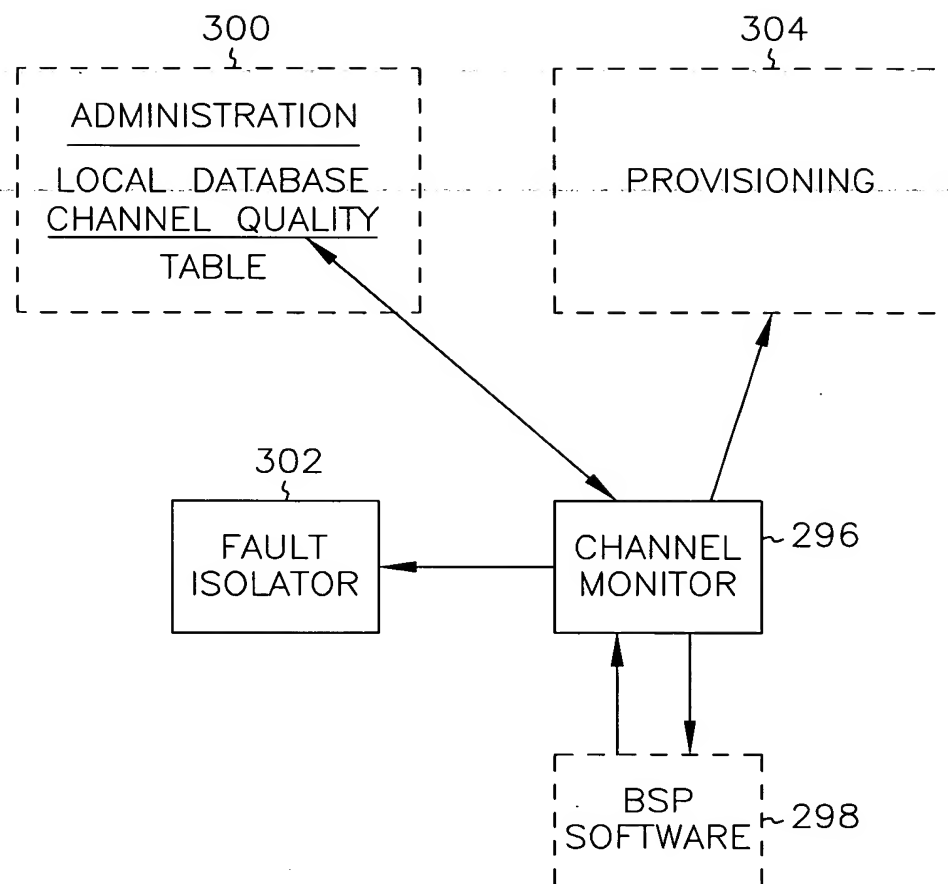


FIG. 40

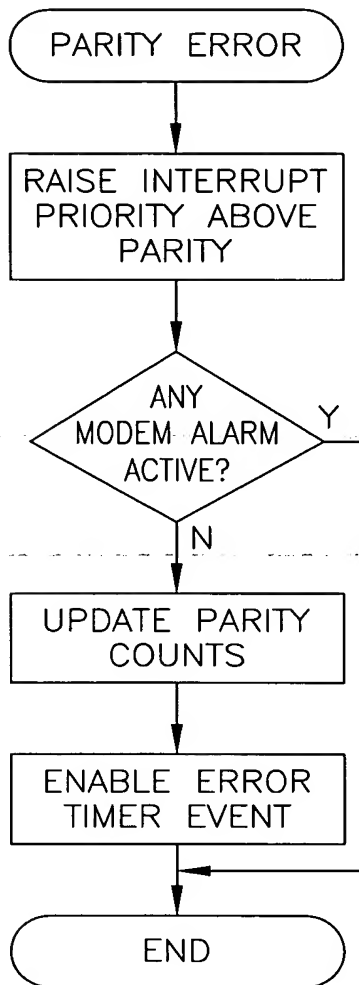


FIG. 41

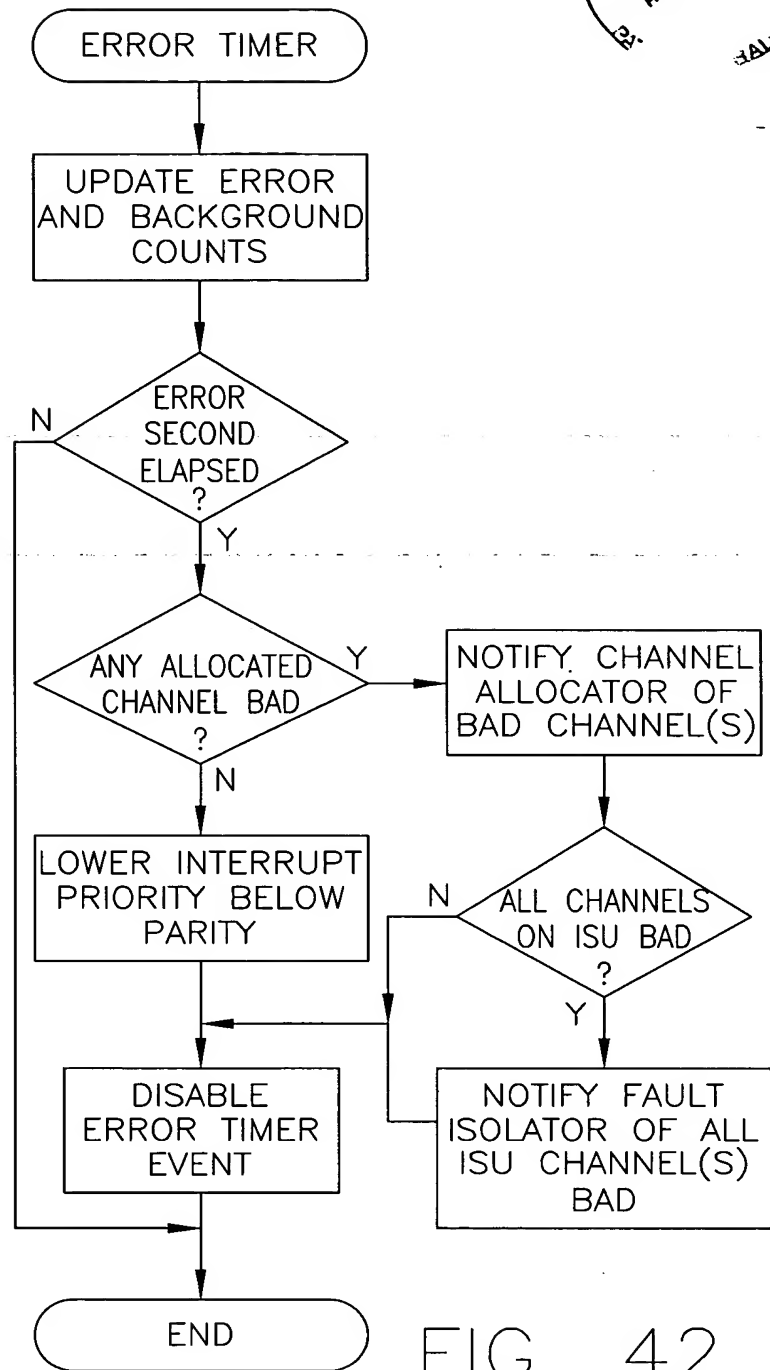


FIG. 42

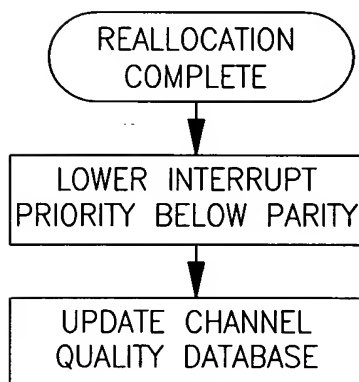
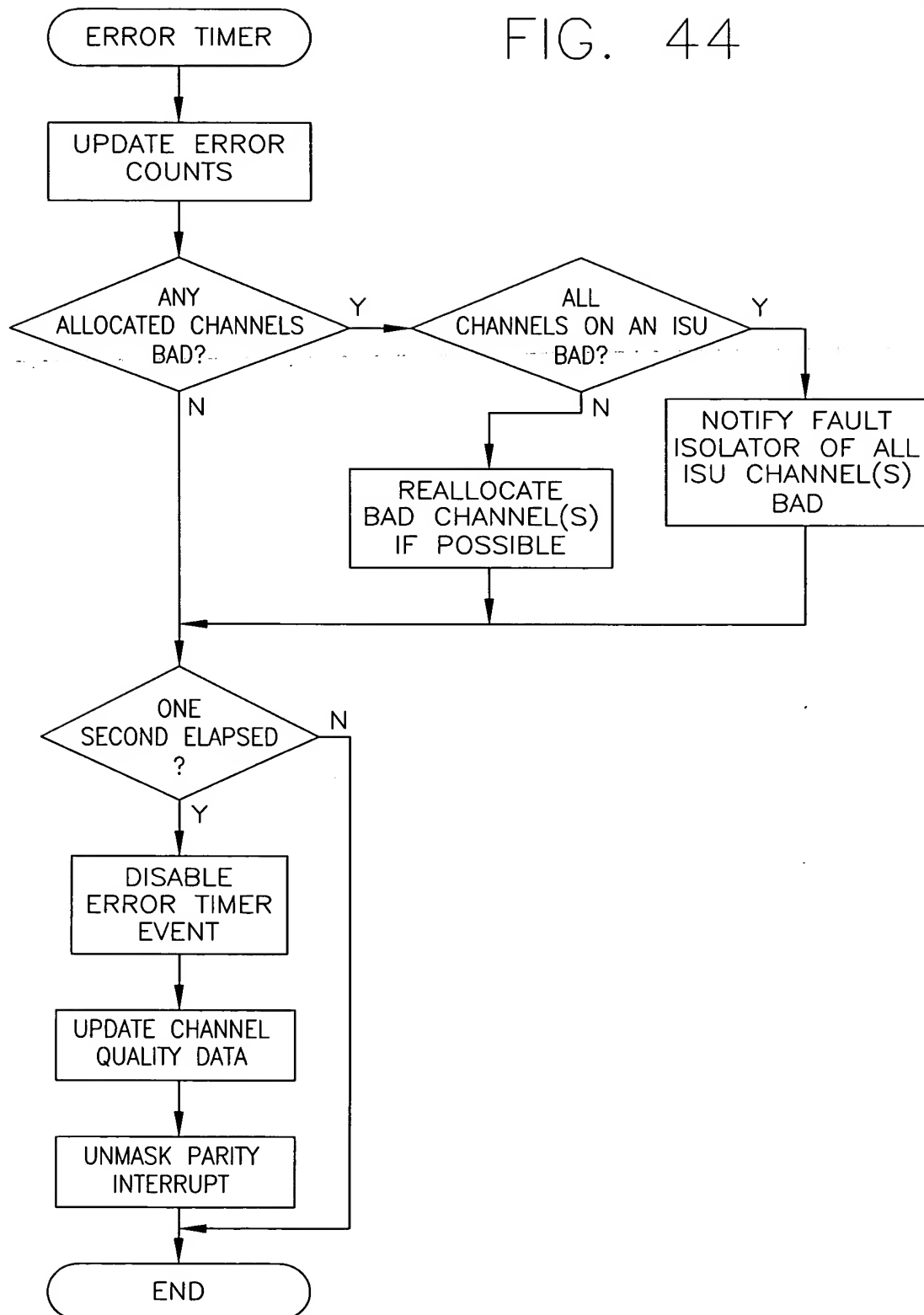
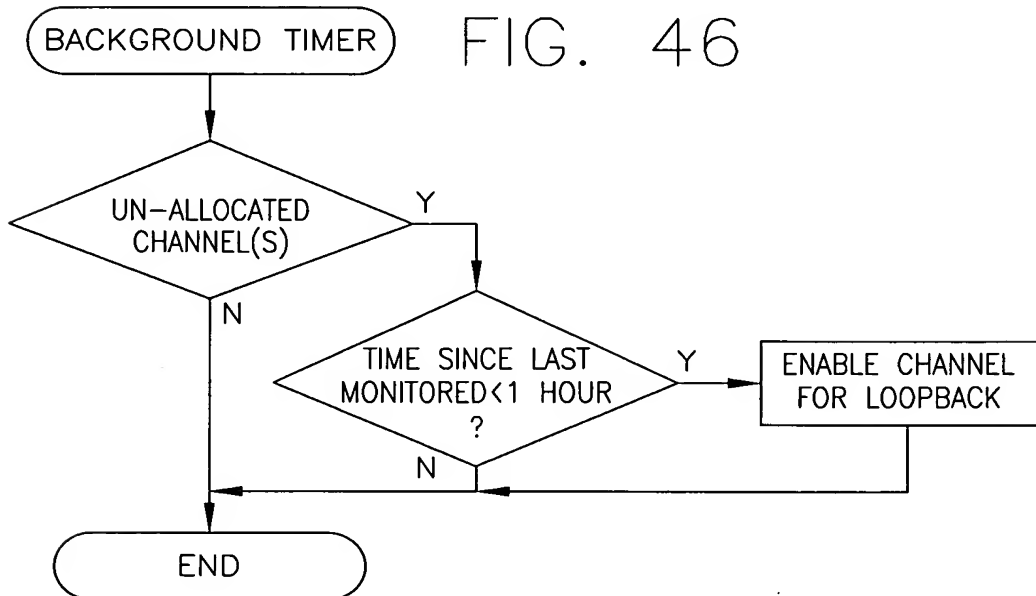
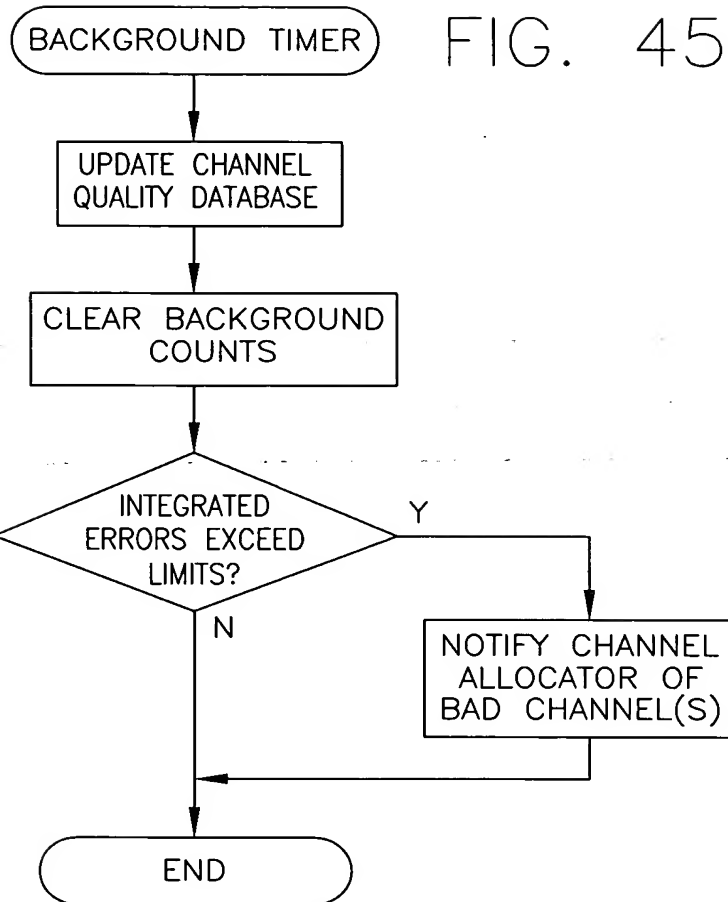
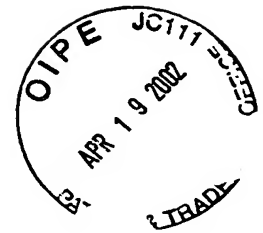


FIG. 43

FIG. 44





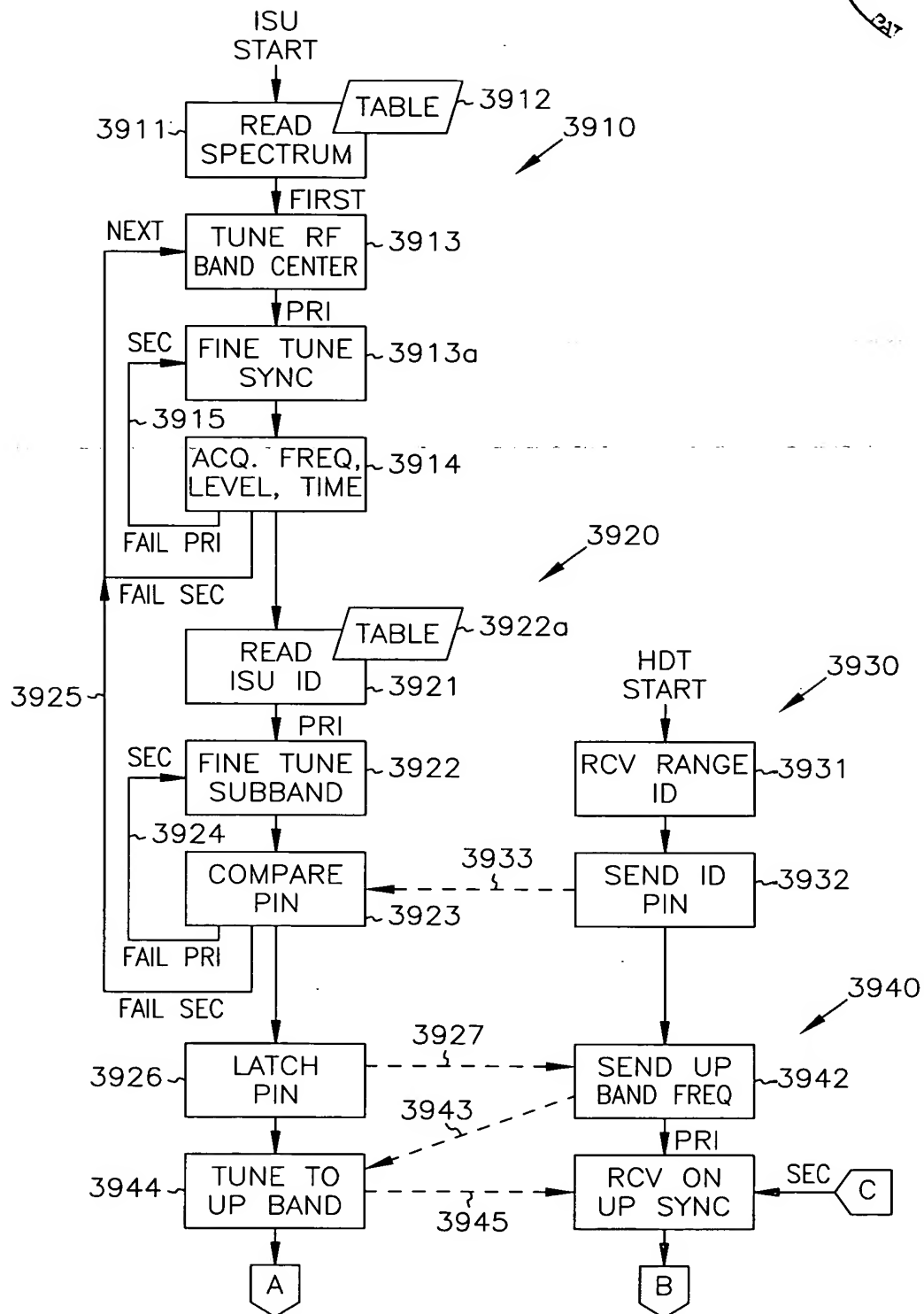
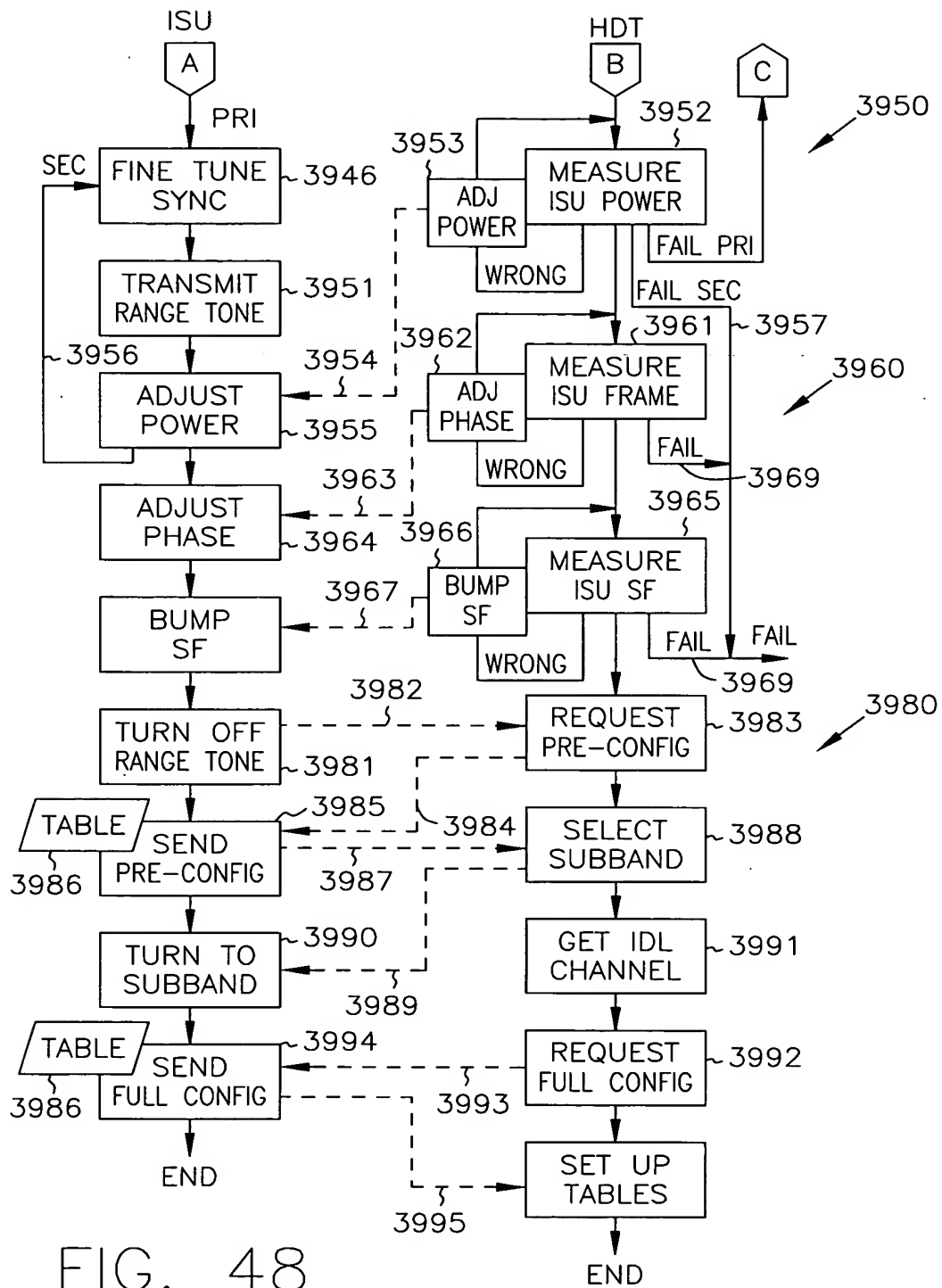


FIG. 47



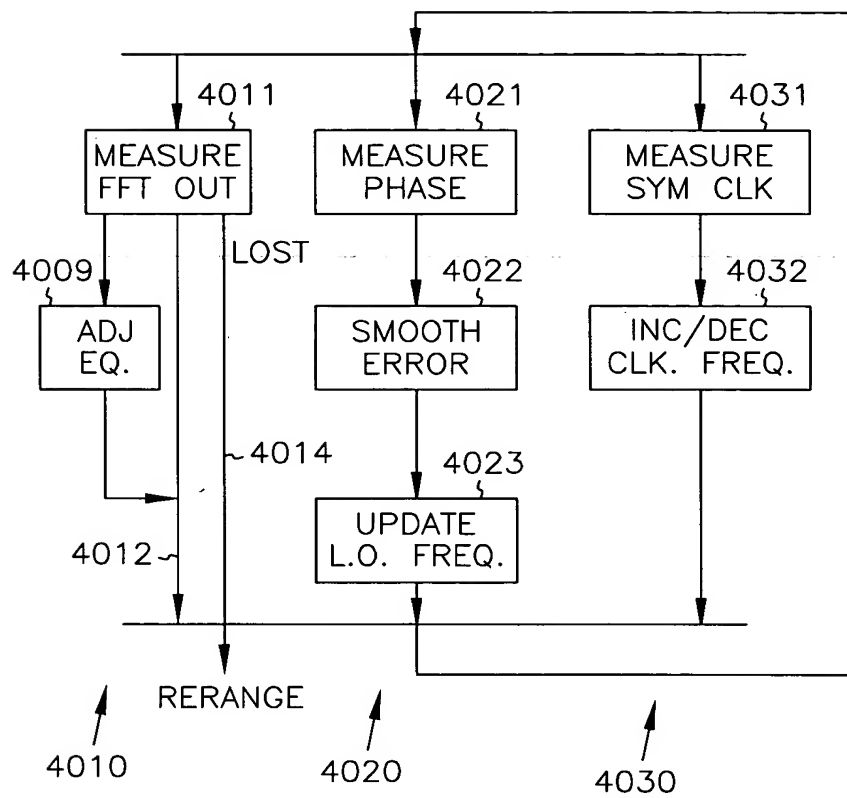


FIG. 49

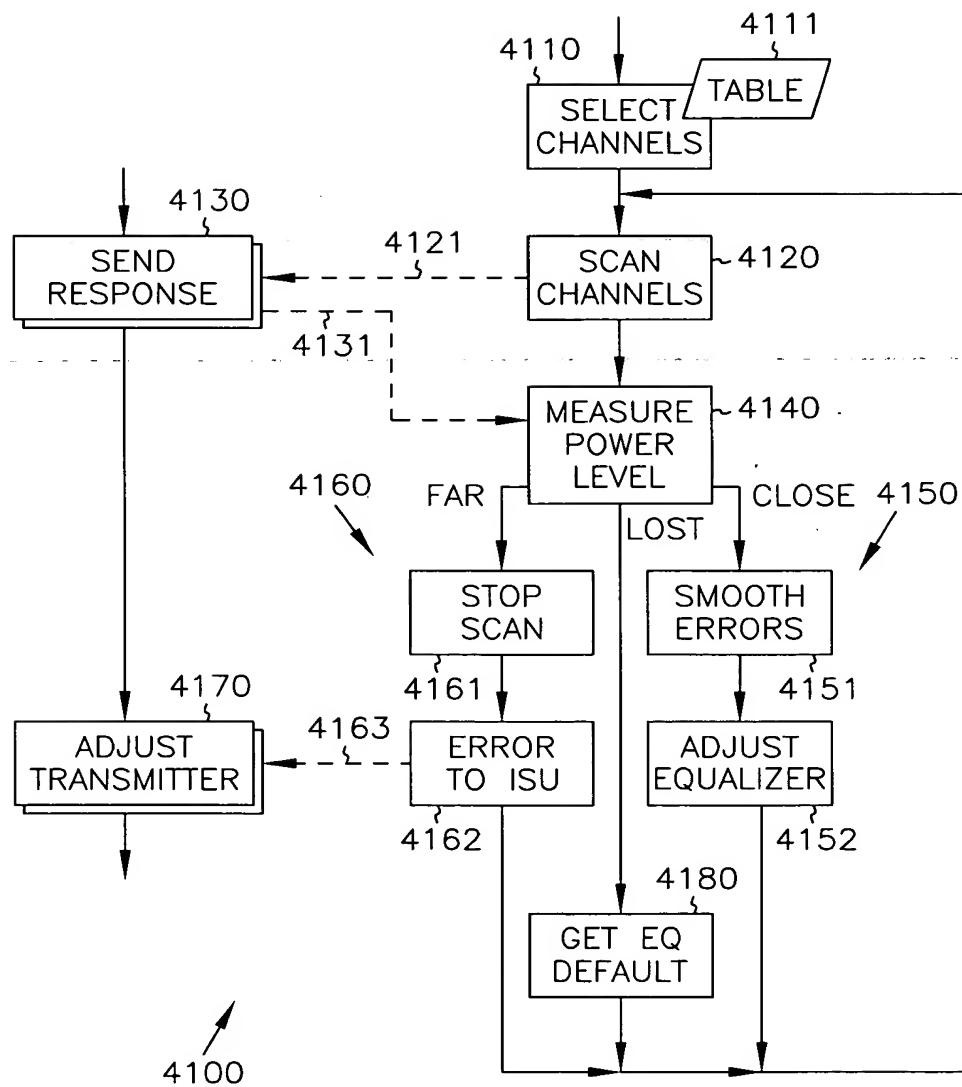


FIG. 50

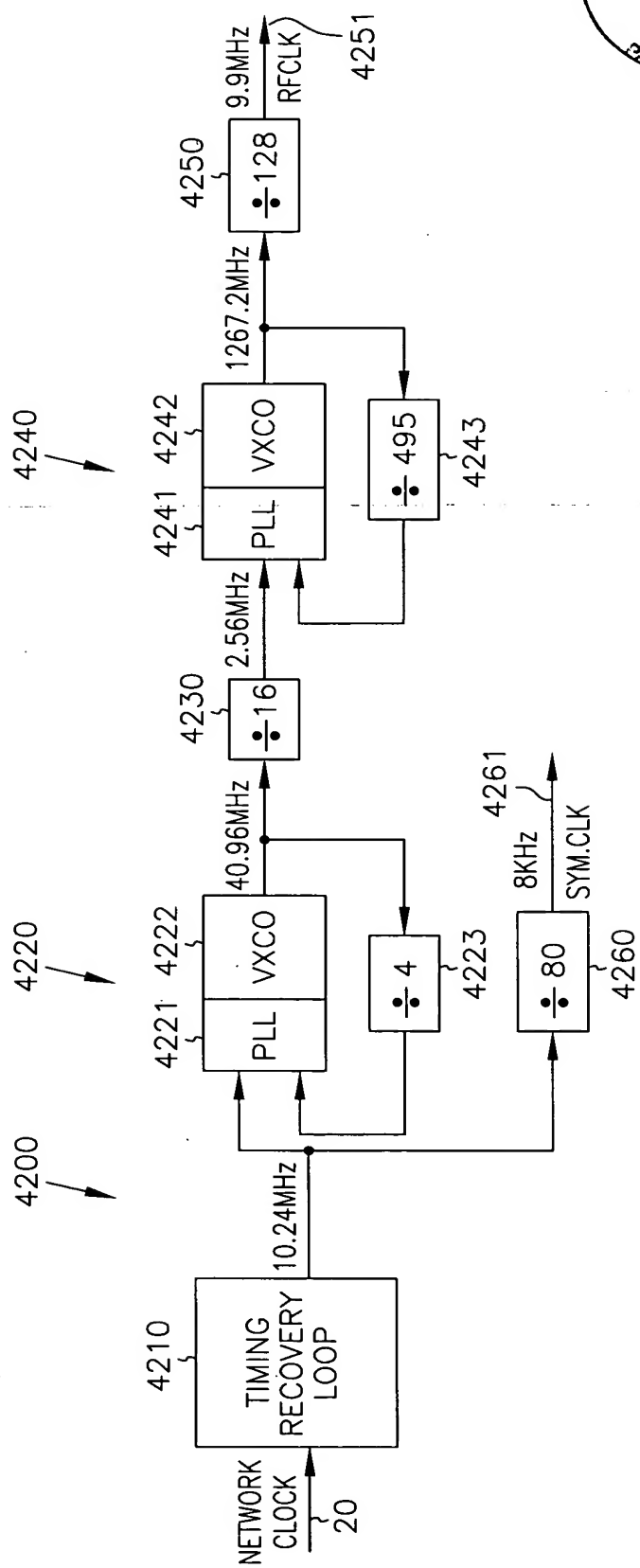


FIG. 51



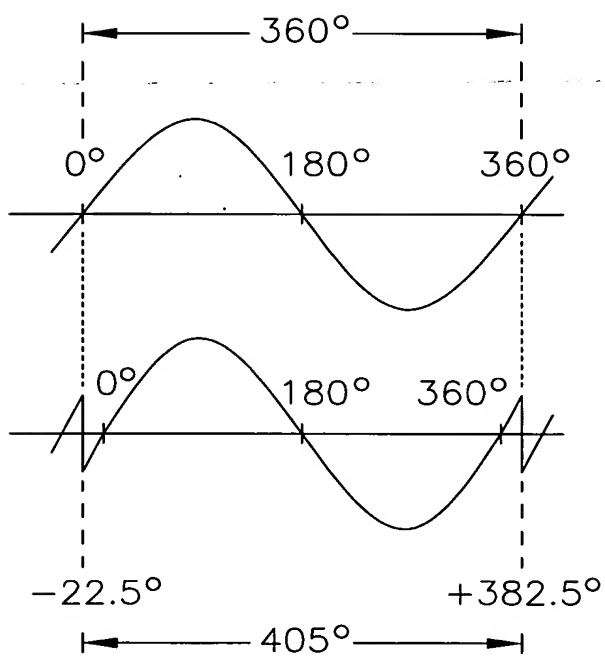
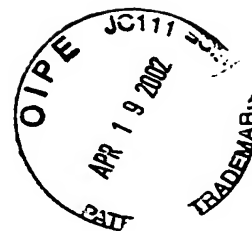


FIG. 52

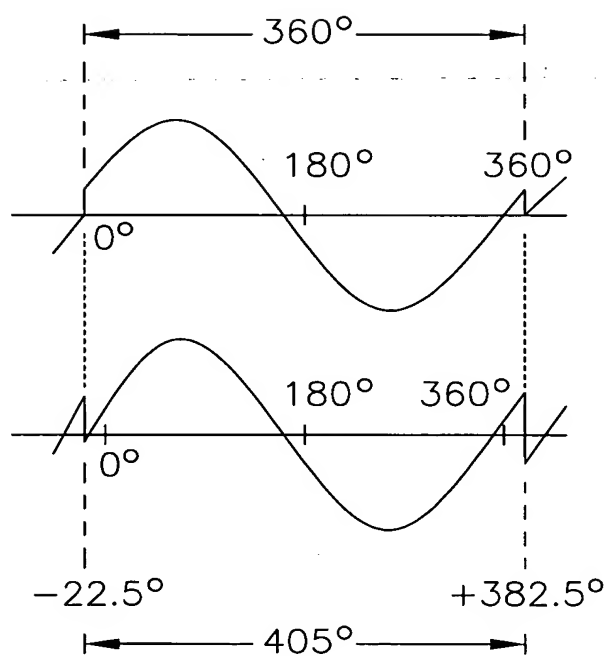
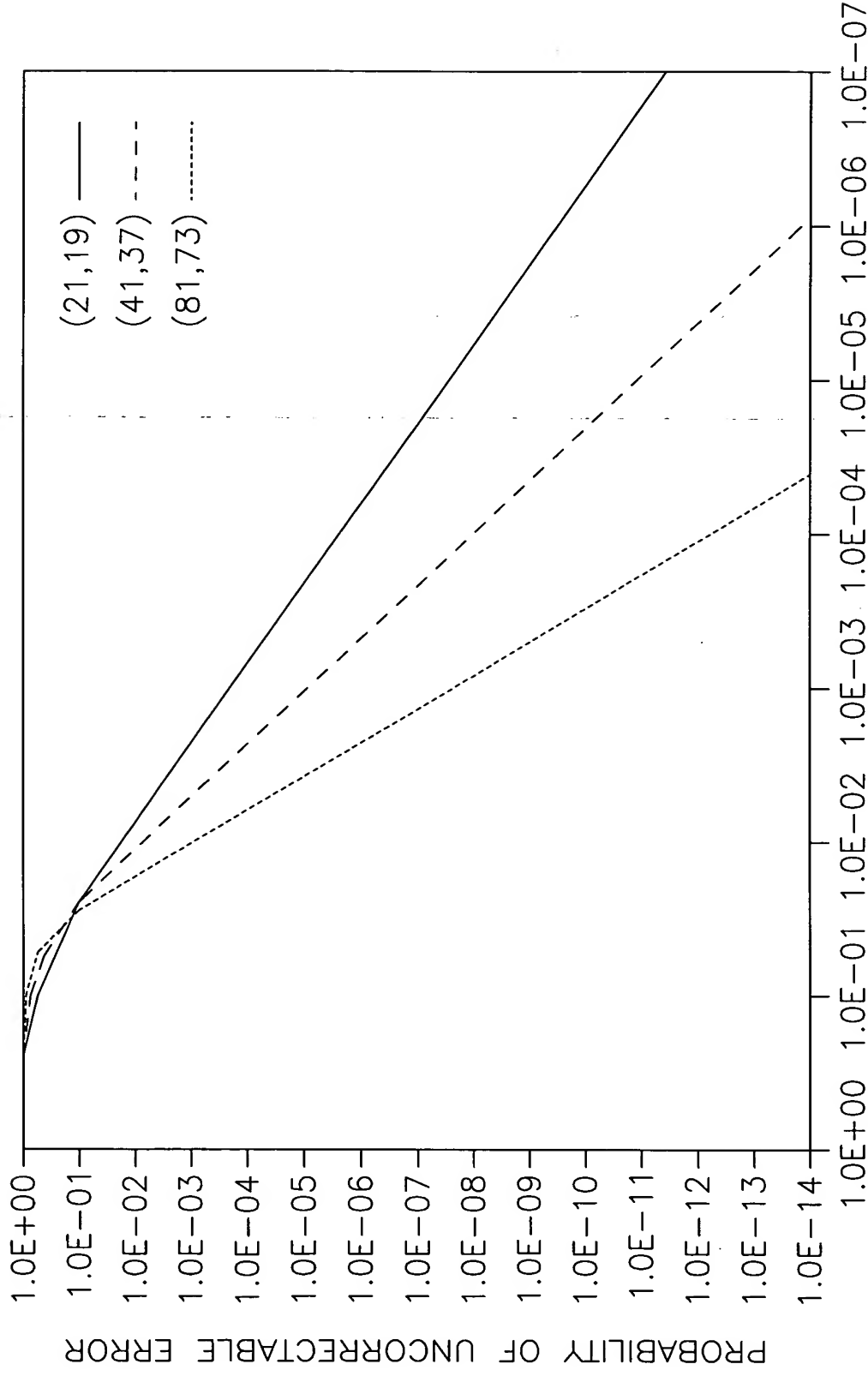


FIG. 53



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APR 19 2002
DATE

FIG. 54

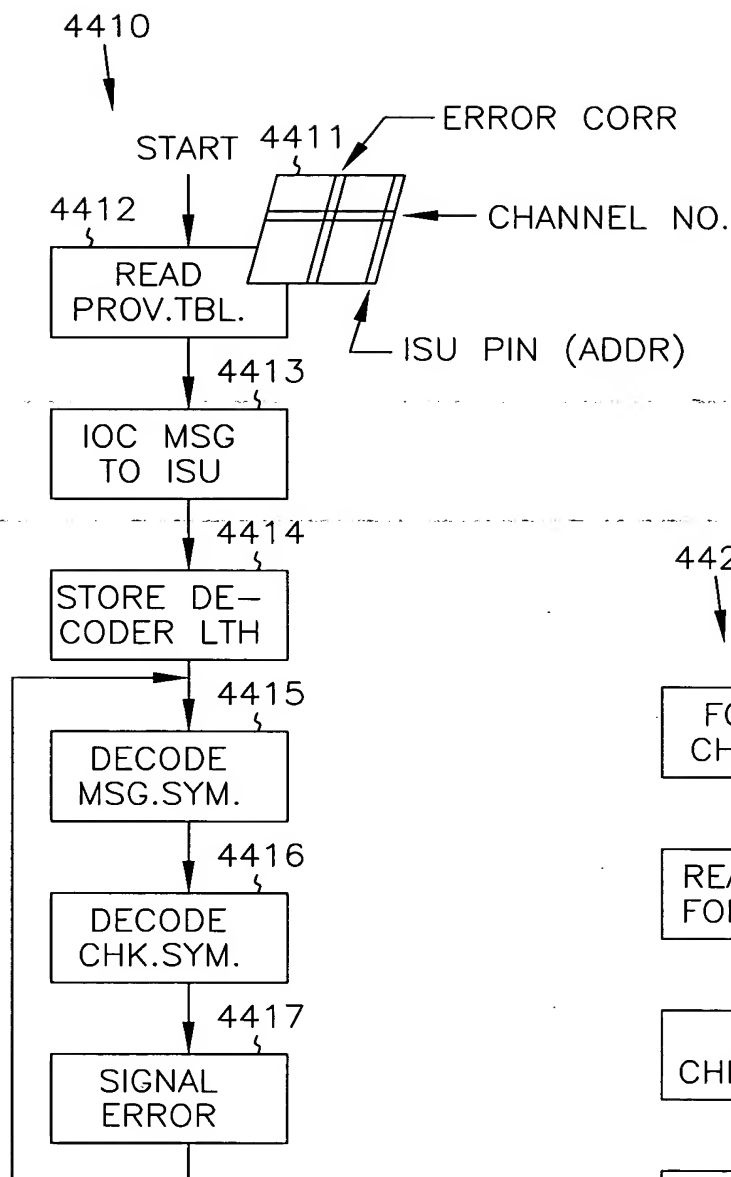


FIG. 55

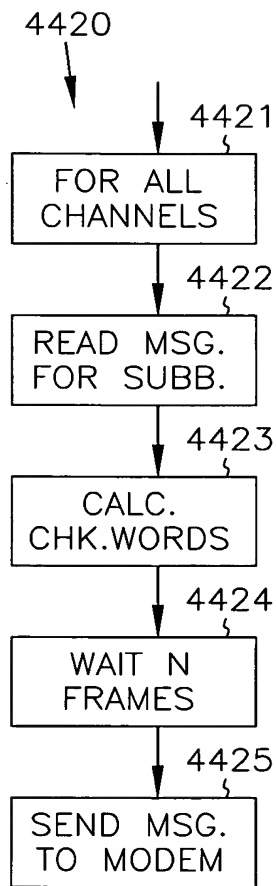


FIG. 56

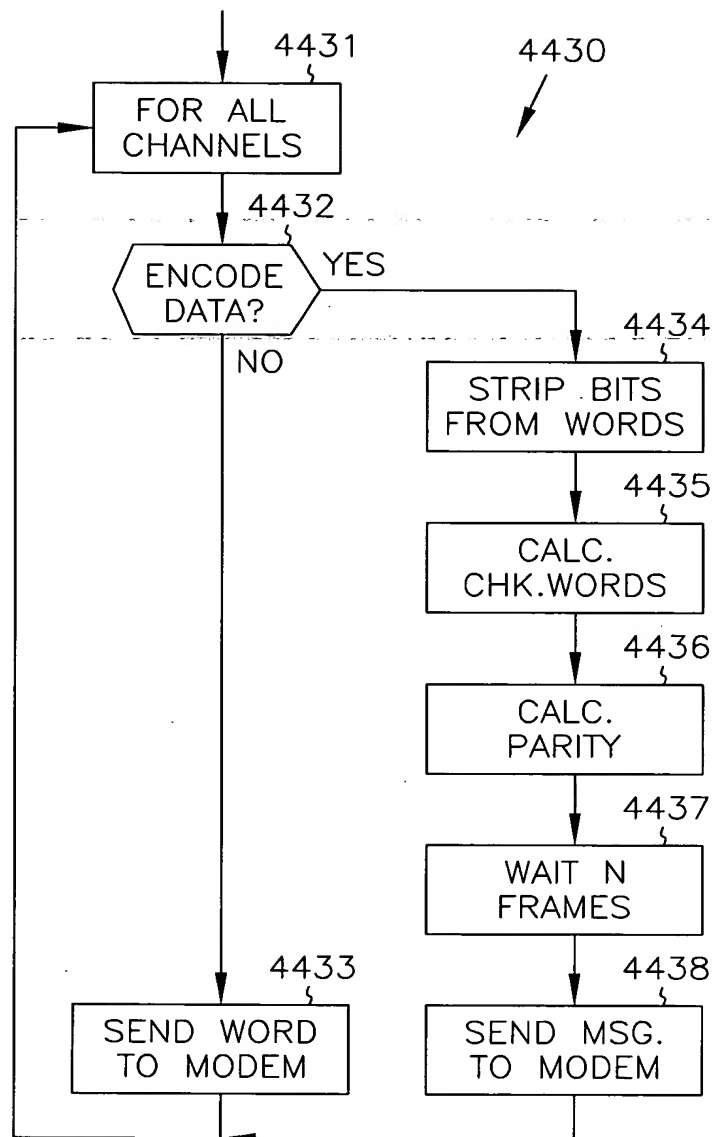


FIG. 57

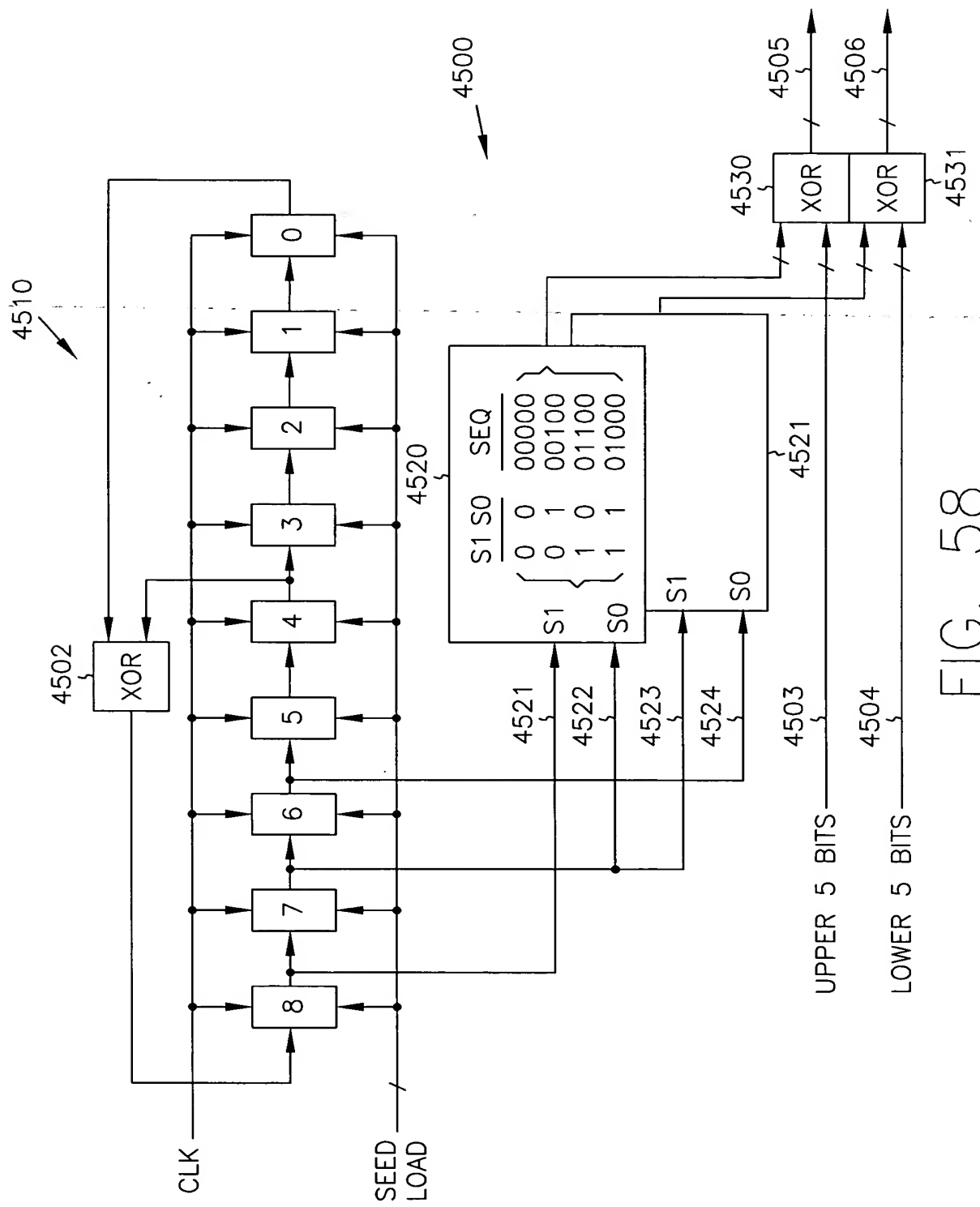


FIG. 58

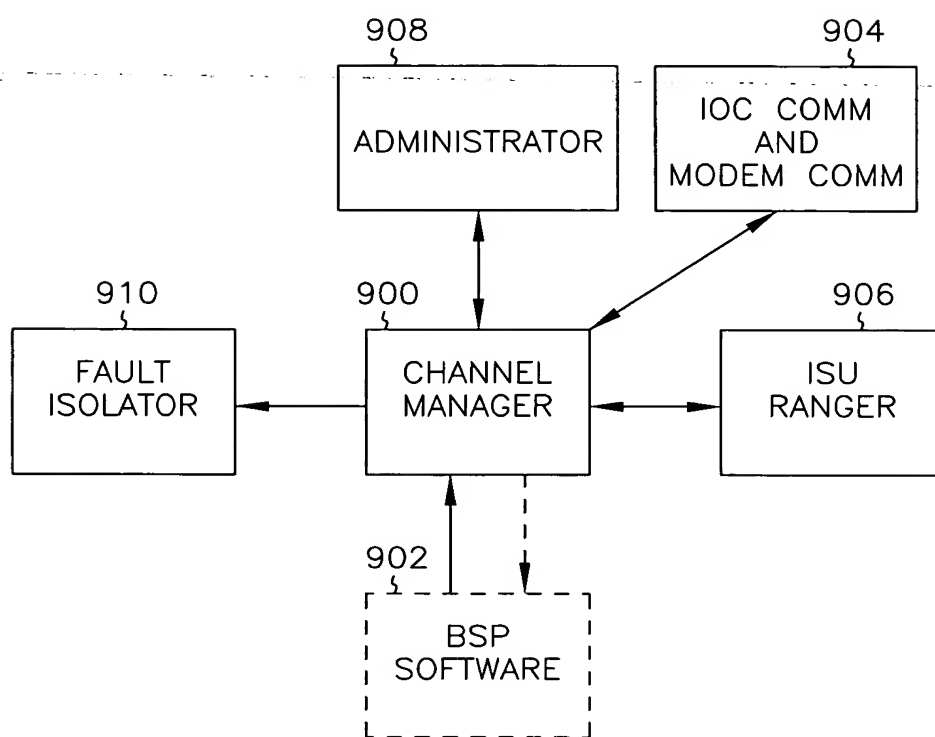


FIG. 59

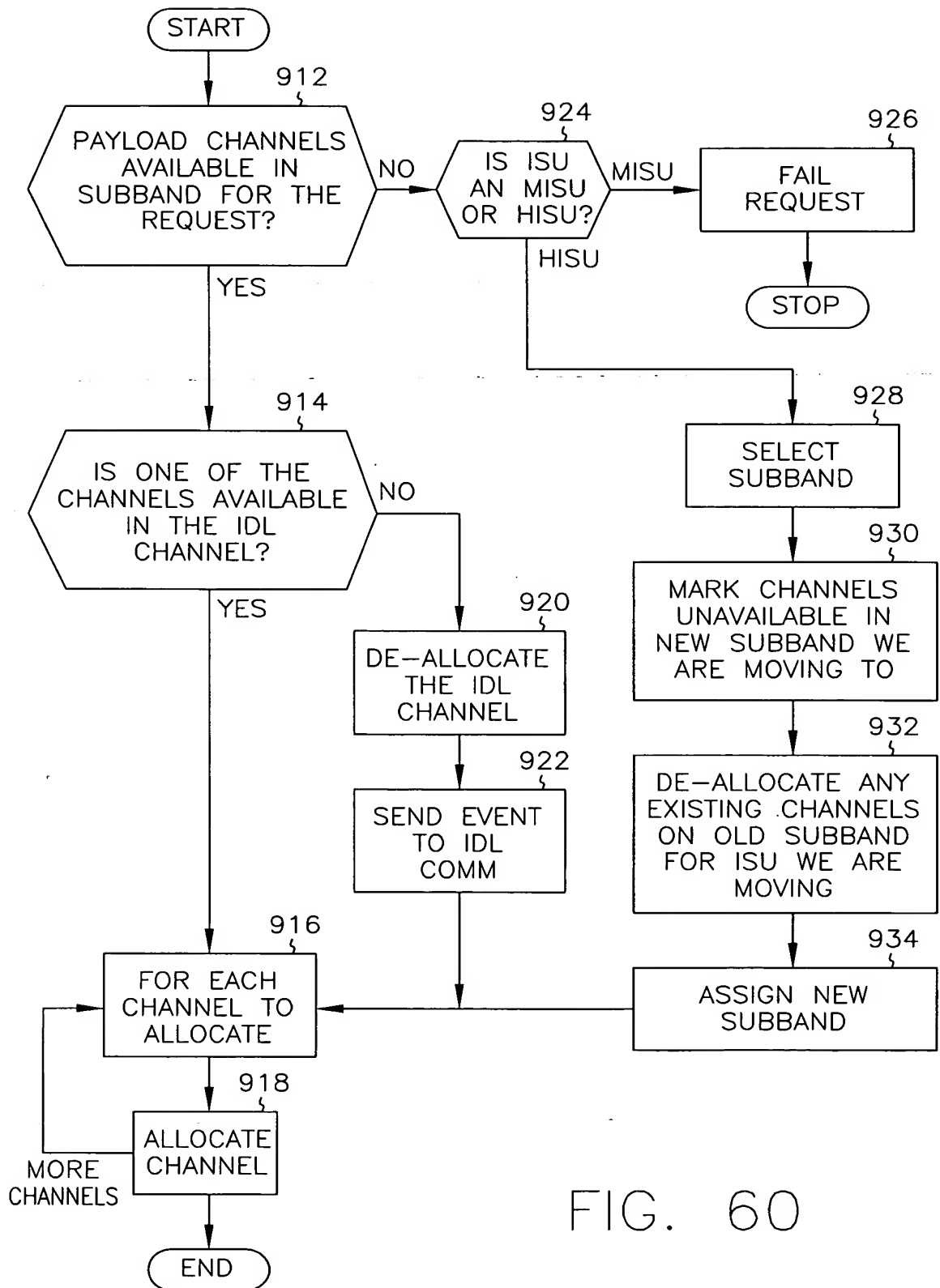


FIG. 60

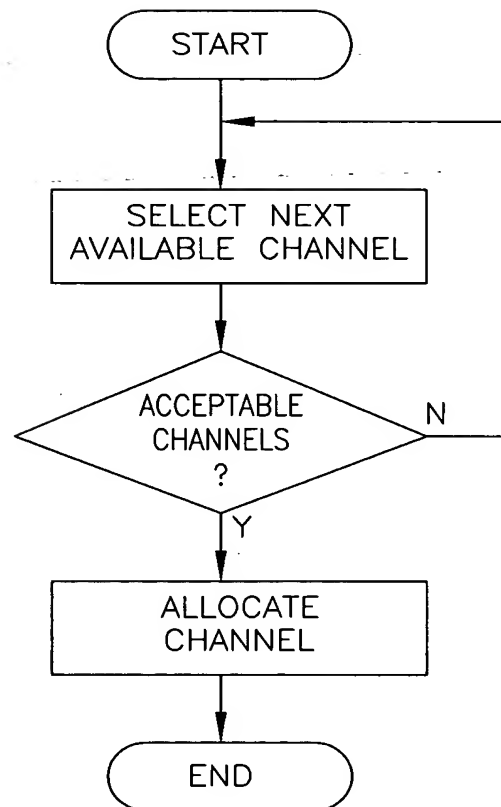


FIG. 61

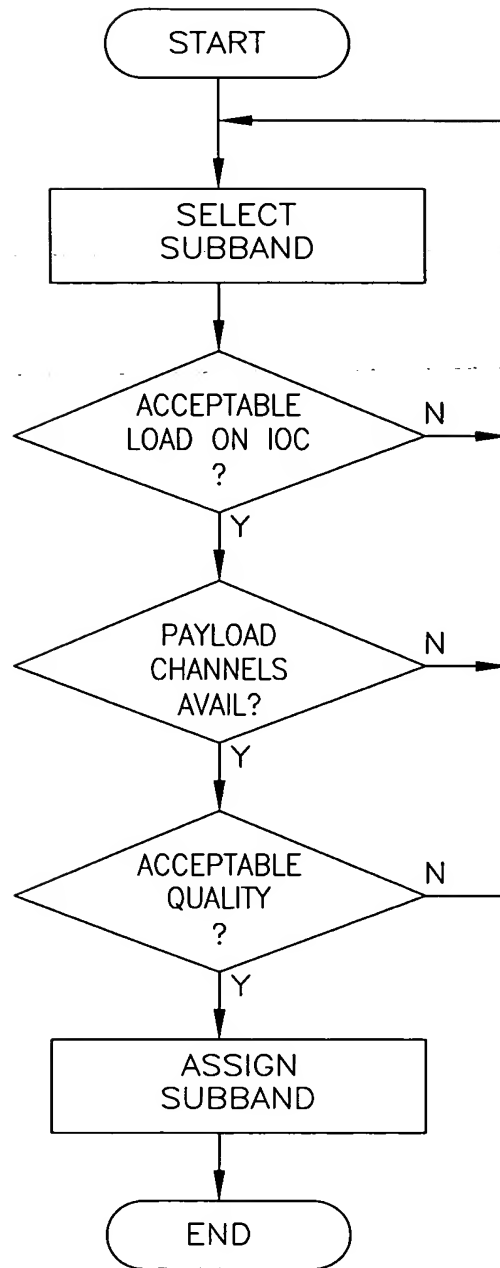
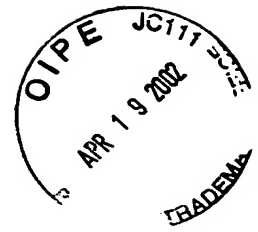
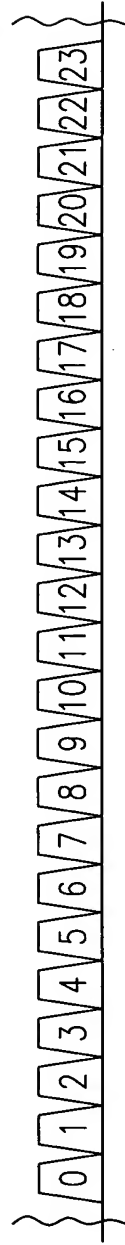


FIG. 62

6 MHz FREQUENCY SPECTRUM

LOWER → HIGHER

LOWEST HISU



HISU #1

HISU #2

HISU #3

HISU #4

• •

HISU #24

—

—

—

—

— = SUBBAND

FIG. 63



6 MHz FREQUENCY SPECTRUM

LOWER

HIGHER

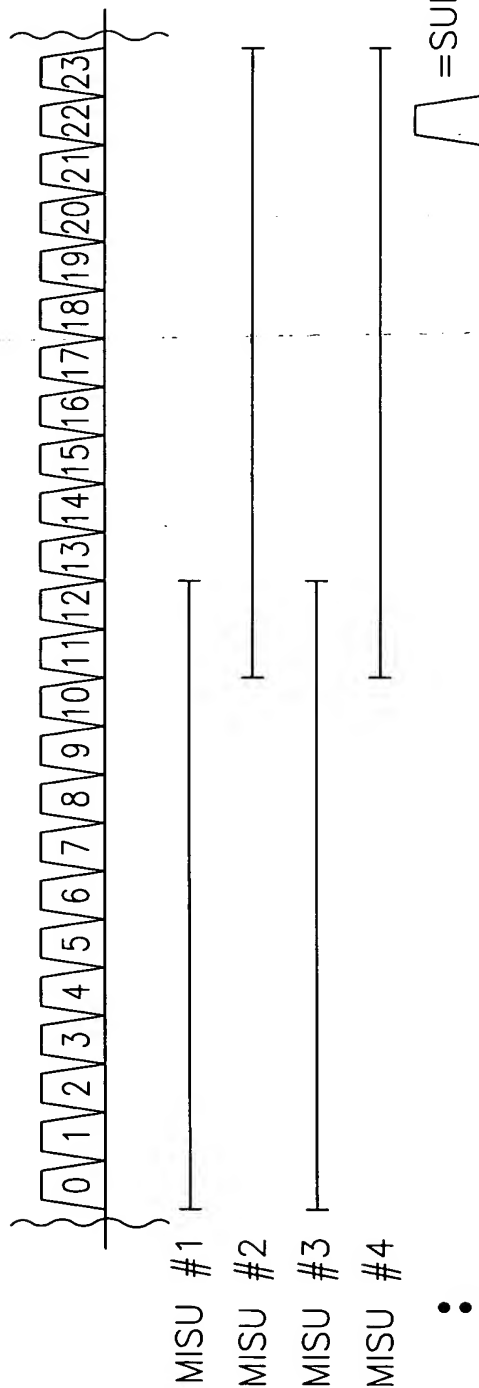
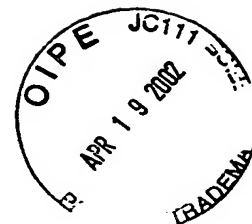


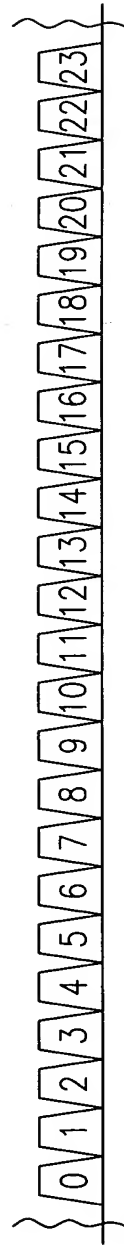
FIG. 64



6 MHz FREQUENCY SPECTRUM

LOWER → HIGHER

LOWEST HISU HIGHEST HISU



MISU #1

HISU #1

HISU #2

HISU #3

MISU #2

▮ = SUBBAND

FIG. 65



FREQUENCY
 LOWER → → HIGHER

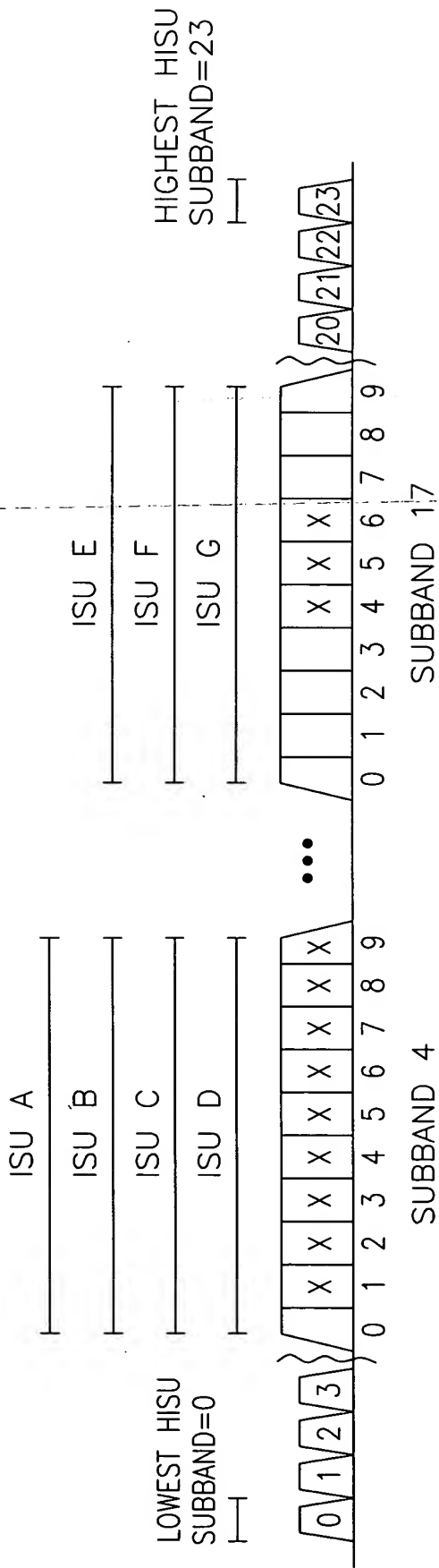


FIG. 66



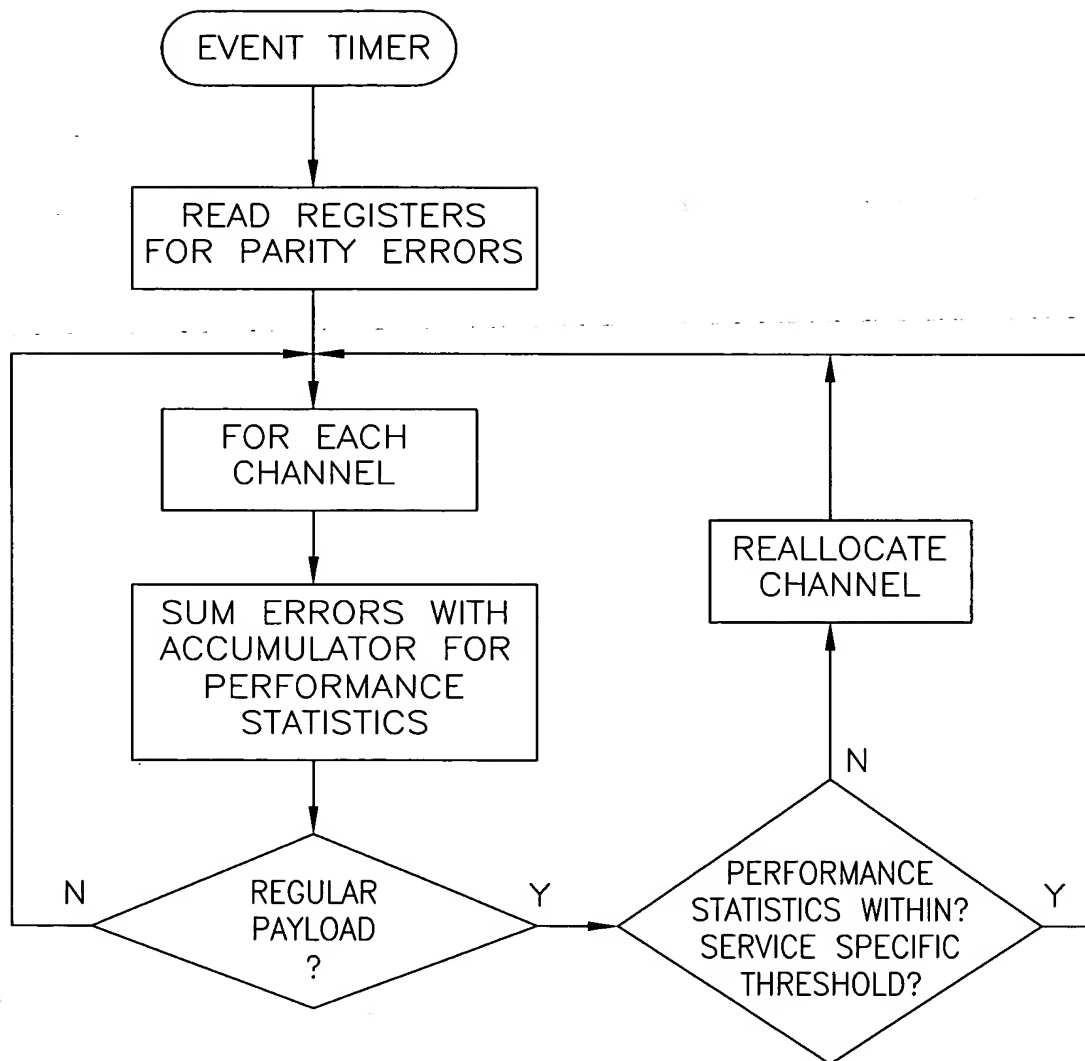


FIG. 68

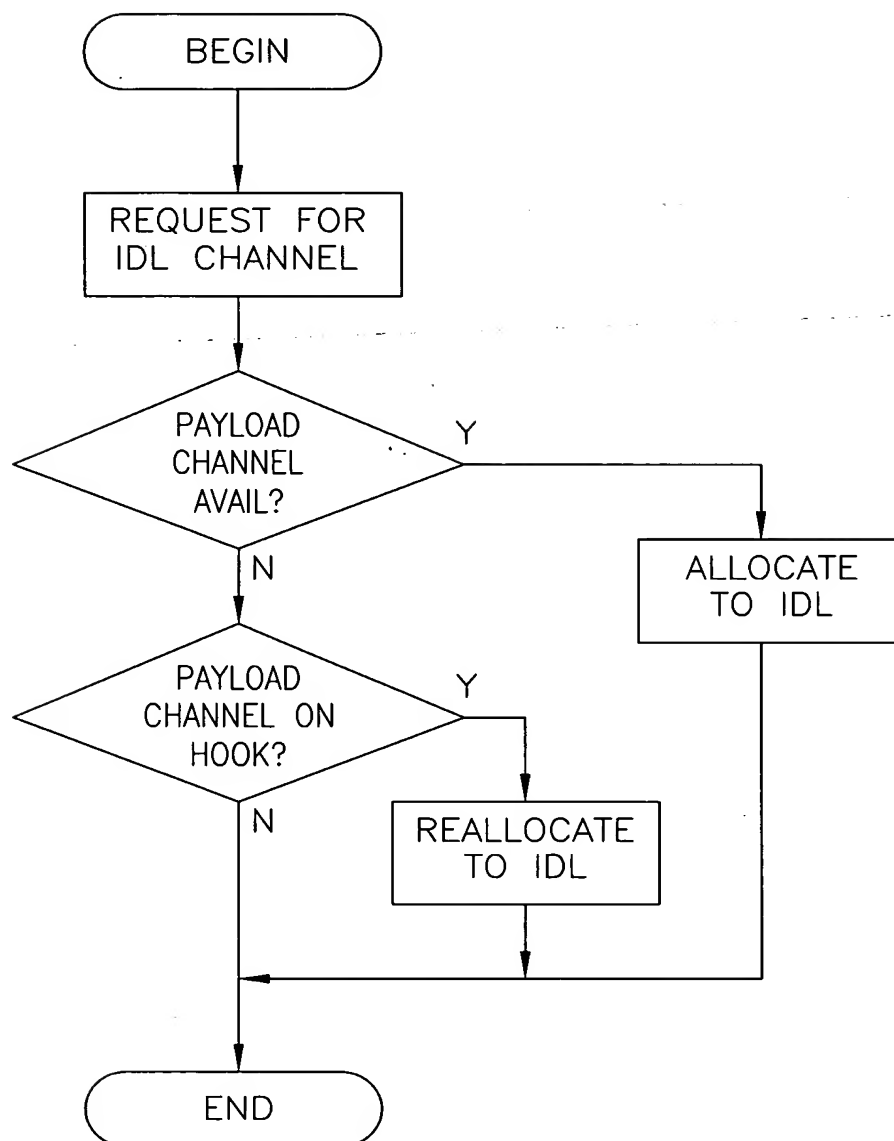


FIG. 69

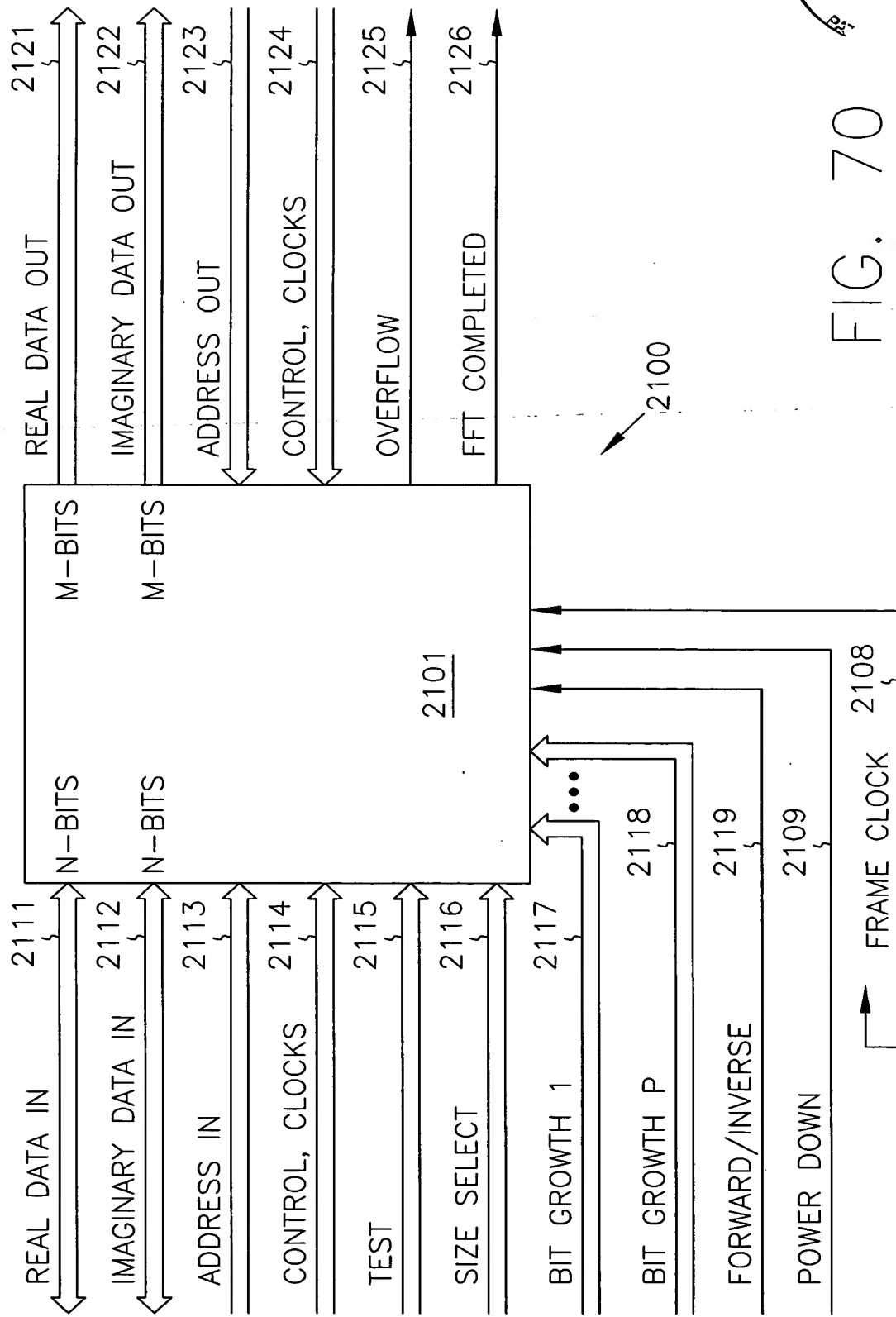
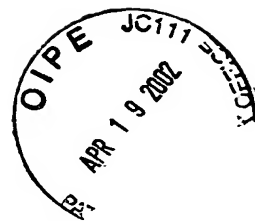


FIG. 70



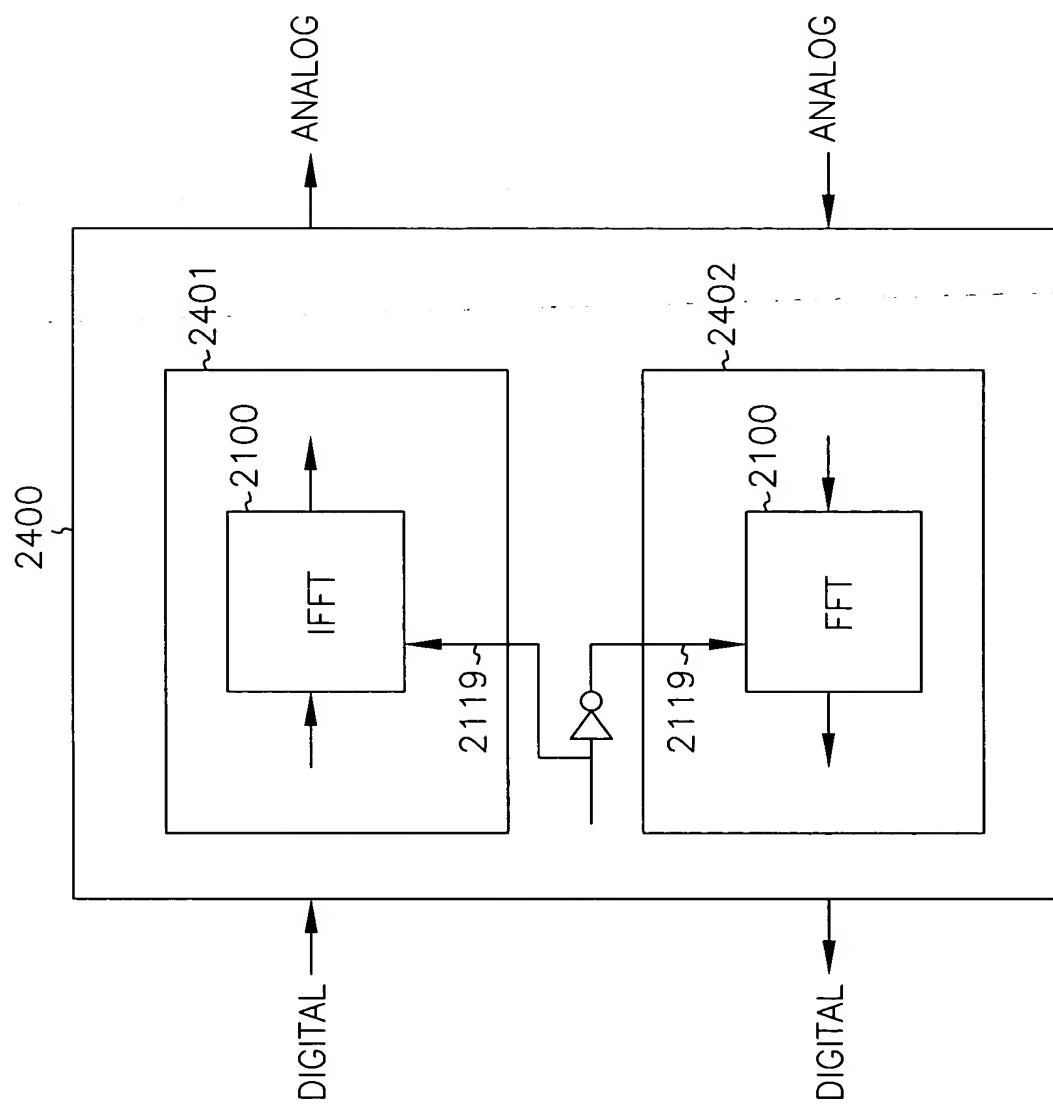


FIG. 71

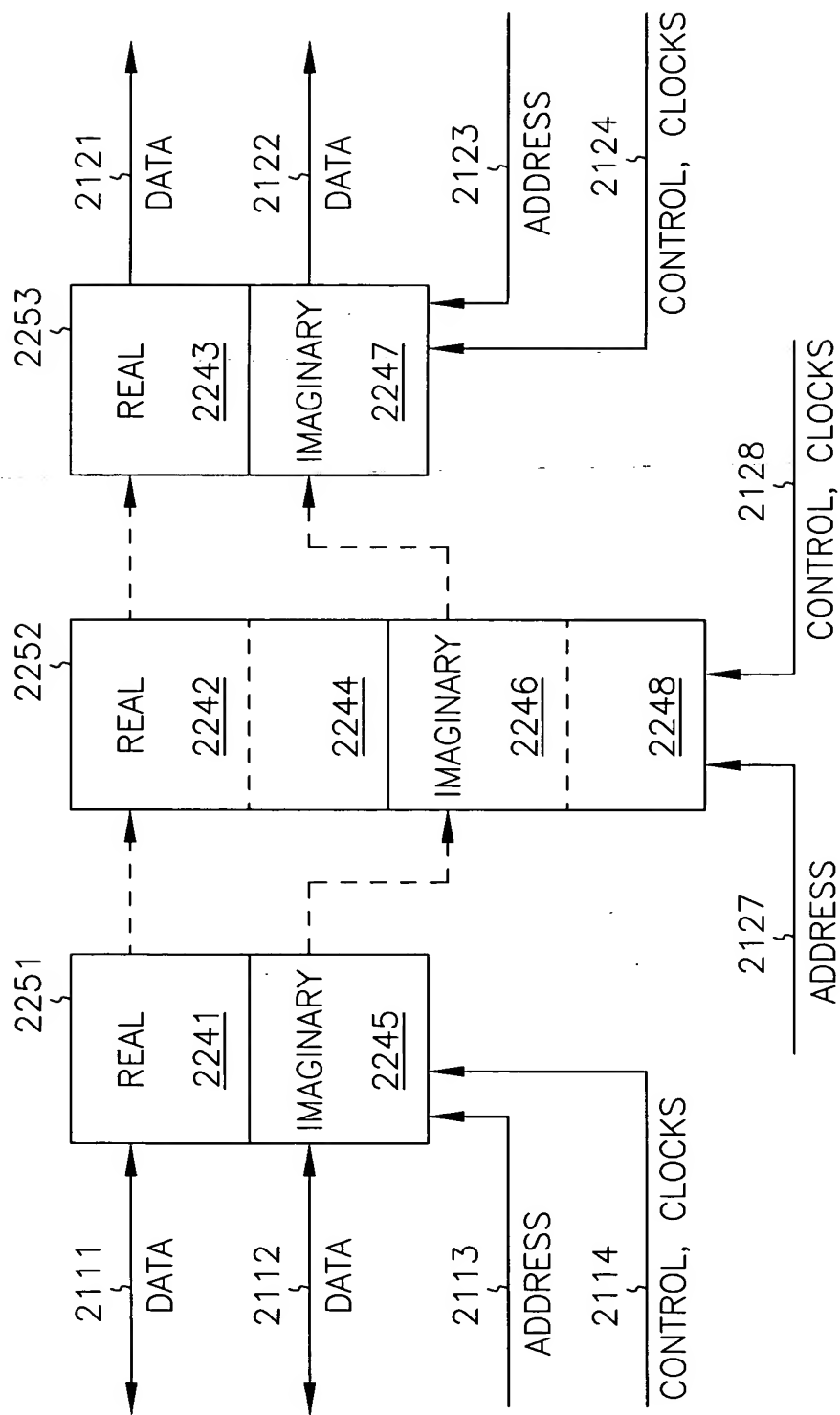
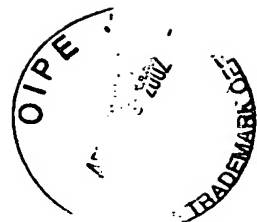


FIG. 72



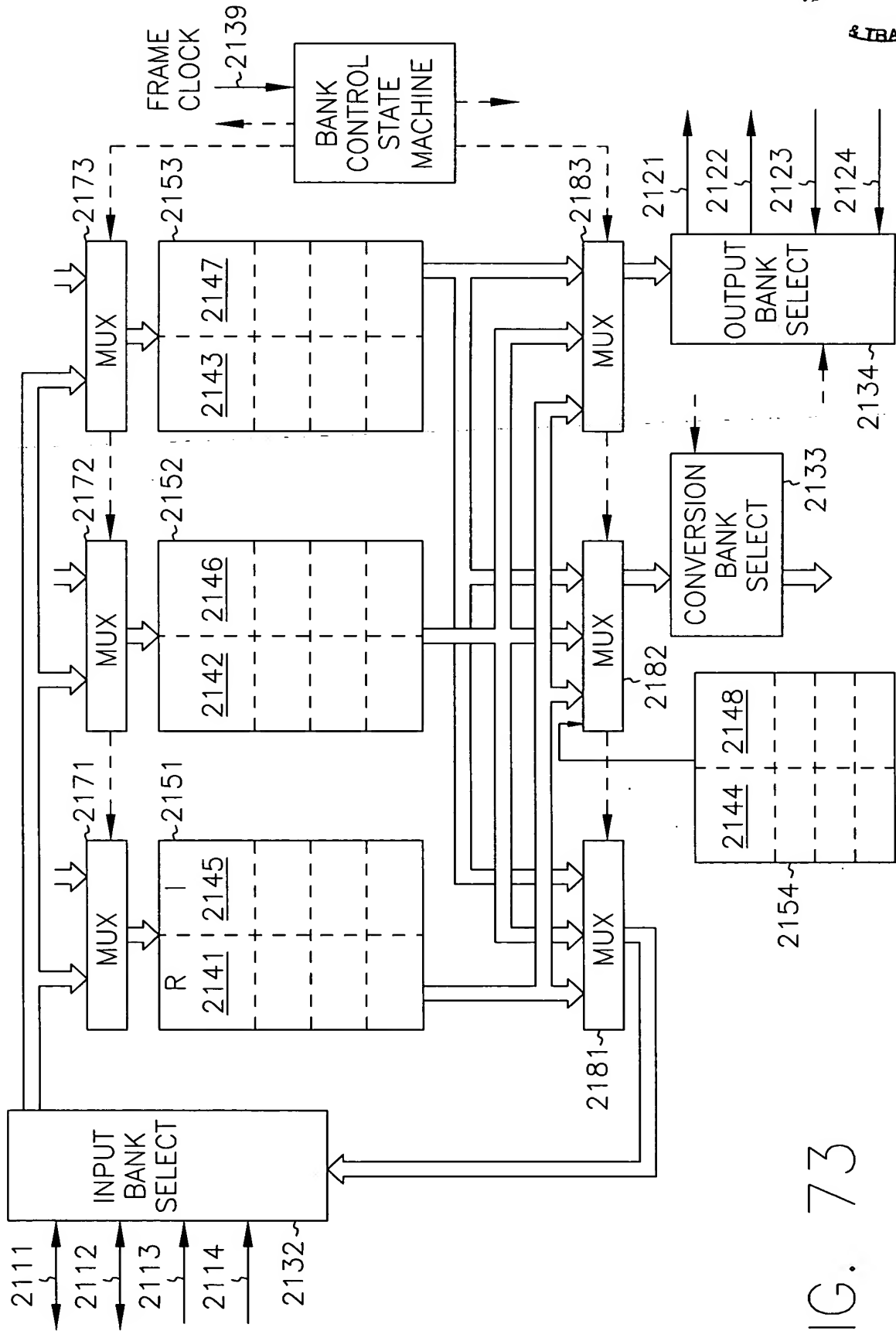
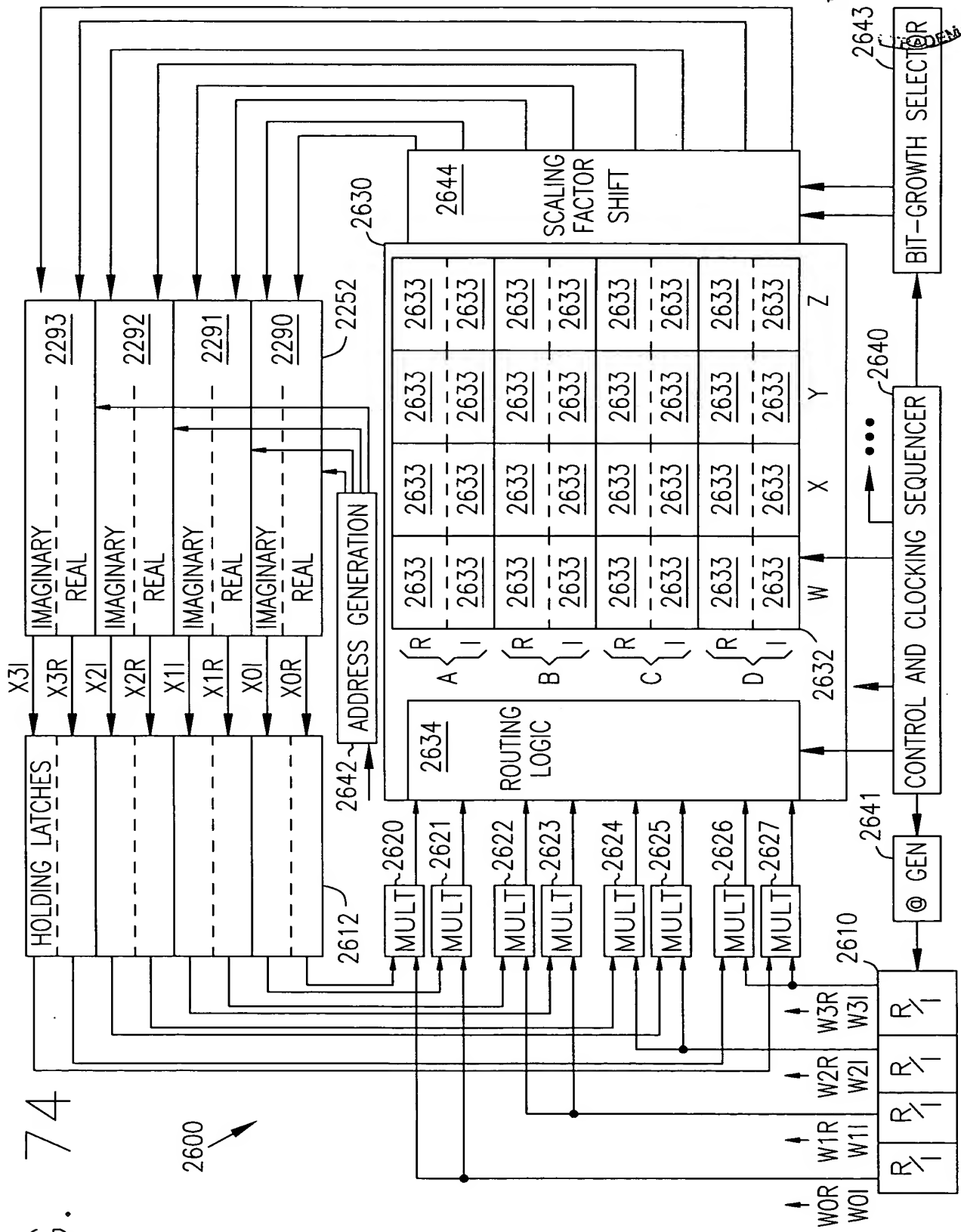


FIG. 73

FIG. 74



THIS TABLE SHOWS THE ORDER OF CALCULATION FOR A TRANSPOSED BUTTERFLY:

CO

~2632

AWR=WR AWI=WI	AXR=XR AXI=XI	AYR=YR AYI=YI	AZR=ZR AZI=ZI
BWR=WR BWI=WI	BXR=XR BXI=XI	BYR=YR BYI=YI	BZR=ZR BZI=ZI
CWR=WR CWI=WI	CXR=XR CXI=XI	CYR=YR CYI=YI	CZR=ZR CZI=ZI
DWR=WR DWI=WI	DXR=XR DXI=XI	DYR=YR DYI=YI	DZR=ZR DZI=ZI

2800

FIG. 75

CI

~2632

AWR=AWR - WI AWI=AWI + WR	AXR=AXR - XI AXI=AXI + XR	AYR=AYR - YI AYI=AYI + YR	AZR=AZR - ZI AZI=AZI + ZR
BWR=BWR - WI BWI=BWI + WR	BXR=BXR - XI BXI=BXI + XR	BYR=BYR - YI BYI=BYI + YR	BZR=BZR - ZI BZI=BZI + ZR
CWR=CWR - WI CWI=CWI + WR	CXR=CXR - XI CXI=CXI + XR	CYR=CYR - YI CYI=CYI + YR	CZR=CZR - ZI CZI=CZI + ZR
DWR=DWR - WI DWI=DWI + WR	DXR=DXR - XI DXI=DXI + XR	DYR=DYR - YI DYI=DYI + YR	DZR=DZR - ZI DZI=DZI + ZR

2800

FIG. 76



C2

~2632

AWR=AWR +WR AWI=AWI +WI	AXR=AXR +XI AXI=AXI -XR	AYR=AYR -YR AYI=AYI -YI	AZR=AZR -ZI AZI=AZI +ZR
BWR=BWR +WR BWI=BWI +WI	BXR=BXR +XI BXI=BXI -XR	BYR=BYR -YR BYI=BYI -YI	BZR=BZR -ZI BZI=BZI +ZR
CWR=CWR +WR CWI=CWI +WI	CXR=CXR +XI CXI=CXI -XR	CYR=CYR -YR CYI=CYI -YI	CZR=CZR -ZI CZI=CZI +ZR
DWR=DWR +WR DWI=DWI +WI	DXR=DXR +XI DXI=DXI -XR	DYR=DYR -YR DYI=DYI -YI	DZR=DZR -ZI DZI=DZI +ZR

2800

FIG. 77

C3

~2632

AWR=AWR -WI AWI=AWI +WR	AXR=AXR +XR AXI=AXI +XI	AYR=AYR +YI AYI=AYI -YR	AZR=AZR -ZR AZI=AZI -ZI
BWR=BWR -WI BWI=BWI +WR	BXR=BXR +XR BXI=BXI +XI	BYR=BYR +YI BYI=BYI -YR	BZR=BZR -ZR BZI=BZI -ZI
CWR=CWR -WI CWI=CWI +WR	CXR=CXR +XR CXI=CXI +XI	CYR=CYR +YI CYI=CYI -YR	CZR=CZR -ZR CZI=CZI -ZI
DWR=DWR -WI DWI=DWI +WR	DXR=DXR +XR DXI=DXI +XI	DYR=DYR +YI DYI=DYI -YR	DZR=DZR -ZR DZI=DZI -ZI

2800

FIG. 78



C4

~2632

AWR=AWR +WR AWI=AWI +WI	AXR=AXR -XR AXI=AXI -XI	AYR=AYR +YR AYI=AYI +YI	AZR=AZR -ZR AZI=AZI -ZI
BWR=BWR +WR BWI=BWI +WI	BXR=BXR -XR BXI=BXI -XI	BYR=BYR +YR BYI=BYI +YI	BZR=BZR -ZR BZI=BZI -ZI
CWR=CWR +WR CWI=CWI +WI	CXR=CXR -XR CXI=CXI -XI	CYR=CYR +YR CYI=CYI +YI	CZR=CZR -ZR CZI=CZI -ZI
DWR=DWR +WR DWI=DWI +WI	DXR=DXR -XR DXI=DXI -XI	DYR=DYR +YR DYI=DYI +YI	DZR=DZR -ZR DZI=DZI -ZI

2800
↙

FIG. 79

C5

~2632

AWR=AWR -WI AWI=AWI +WR	AXR=AXR +XI AXI=AXI -XR	AYR=AYR -YI AYI=AYI +YR	AZR=AZR +ZI AZI=AZI -ZR
BWR=BWR -WI BWI=BWI +WR	BXR=BXR +XI BXI=BXI -XR	BYR=BYR -YI BYI=BYI +YR	BZR=BZR +ZI BZI=BZI -ZR
CWR=CWR -WI CWI=CWI +WR	CXR=CXR +XI CXI=CXI -XR	CYR=CYR -YI CYI=CYI +YR	CZR=CZR +ZI CZI=CZI -ZR
DWR=DWR -WI DWI=DWI +WR	DXR=DXR +XI DXI=DXI -XR	DYR=DYR -YI DYI=DYI +YR	DZR=DZR +ZI DZI=DZI -ZR

2800
↙

FIG. 80



C6

~2632

AWR=AWR +WR AWI=AWI +WI	AXR=AXR -XI AXI=AXI +XR	AYR=AYR -YR AYI=AYI -YI	AZR=AZR +ZI AZI=AZI -ZR
BWR=BWR +WR BWI=BWI +WI	BXR=BXR -XI BXI=BXI +XR	BYR=BYR -YR BYI=BYI -YI	BZR=BZR +ZI BZI=BZI -ZR
CWR=CWR +WR CWI=CWI +WI	CXR=CXR -XI CXI=CXI +XR	CYR=CYR -YR CYI=CYI -YI	CZR=CZR +ZI CZI=CZI -ZR
DWR=DWR +WR DWI=DWI +WI	DXR=DXR -XI DXI=DXI +XR	DYR=DYR -YR DYI=DYI -YI	DZR=DZR +ZI DZI=DZI -ZR

2800
↙

FIG. 81

C7

~2632

AWR=AWR -WI AWI=AWI +WR	AXR=AXR -XR AXI=AXI -XI	AYR=AYR +YI AYI=AYI -YR	AZR=AZR -ZR AZI=AZI +ZI
BWR=BWR -WI BWI=BWI +WR	BXR=BXR -XR BXI=BXI -XI	BYR=BYR +YI BYI=BYI -YR	BZR=BZR -ZR BZI=BZI +ZI
CWR=CWR -WI CWI=CWI +WR	CXR=CXR -XR CXI=CXI -XI	CYR=CYR +YI CYI=CYI -YR	CZR=CZR -ZR CZI=CZI +ZI
DWR=DWR -WI DWI=DWI +WR	DXR=DXR -XR DXI=DXI -XI	DYR=DYR +YI DYI=DYI -YR	DZR=DZR -ZR DZI=DZI +ZI

2800
↙

FIG. 82



THIS TABLE SHOWS THE ORDER OF CALCULATION FOR A TRANSPOSED BUTTERFLY:

C0

2632

2810

AWR = WR+XR+YR+ZR AWI = WI+XI+YI+ZI	AXR = WR-XI-YR+ZI AXI = WI+XR-YI-ZR	AYR = WR-XR+YR-ZR AYI = WI-XI+YI-ZI	AZR = WR+XI-YR-ZI AZI = WI-XR-YI+ZR
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

FIG. 83

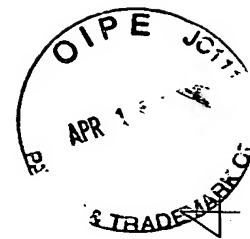
C1

2632

2810

AWR = AWR-(WI+XI+YI+ZI) AWI = AWI+(WR+XR+YR+ZR)	AXR = AXR-(WI+XR-YI-ZR) AXI = AXI+(WR-XI-YR+ZI)	AYR = AYR-(WI-XI+YI-ZI) AYI = AYI+(WR-XR+YR-ZR)	AZR = AZR-(WI-XR-YI+ZR) AZI = AZI+(WR+XI-YR-ZI)
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

FIG. 84



C2

2632

-	-	-	-	-	2810
-	-	-	-	-	
BWR = WR+XR+YR+ZR BWI = WI+XI+YI+ZI	BXR = WR-XI-YR+ZI BXI = WI+XR-YI-ZR	BYR = WR-XR+YR-ZR BYI = WI-XI+YI-ZI	BZR = WR+XI-YR-ZI BZI = WI-XR-YI+ZR		
-	-	-	-	-	
-	-	-	-	-	
-	-	-	-	-	
-	-	-	-	-	

FIG. 85

C3

2632

-	-	-	-	-	2810
-	-	-	-	-	
BWR = BWR-(WI+XI+YI+ZI) BWI = BWI+(WR+XR+YR+ZR)	BXR = BXR-(WI+XR-YI-ZR) BXI = BXI+(WR-XI-YR+ZI)	BYR = BYR-(WI-XI+YI-ZI) BYI = BYI+(WR-XR+YR-ZR)	BZR = BZR-(WI-XR-YI+ZR) BZI = BZI+(WR+XI-YR-ZI)		
-	-	-	-	-	
-	-	-	-	-	
-	-	-	-	-	
-	-	-	-	-	

FIG. 86



C4

2632

-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
CWR = WR+XR+YR+ZR CWI = WI+XI+YI+ZI	CXR = WR-XI-YR+ZI CXI = WI+XR-YI-ZR	CYR = WR-XR+YR-ZR CYI = WI-XI+YI-ZI	CZR = WR+XI-YR-ZI CZI = WI-XR-YI+ZR	
-	-	-	-	-
-	-	-	-	-

2810

FIG. 87

C5

2632

-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
CWR = CWR-(WI+XI+YI+ZI) CWI = CWI+(WR+XR+YR+ZR)	CXR = CXR-(WI+XR-YI-ZR) CXI = CXI+(WR-XI-YR+ZI)	CYR = CYR-(WI-XI+YI-ZI) CYI = CYI+(WR-XR+YR-ZR)	CZR = CZR-(WI-XR-YI+ZR) CZI = CZI+(WR+XI-YR-ZI)	
-	-	-	-	-
-	-	-	-	-

2810

FIG. 88



C6

2632

-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
DWR = WR+XR+YR+ZR DWI = WI+XI+YI+ZI	DXR = WR-XI-YR+ZI DXI = WI+XR-YI-ZR	DYR = WR-XR+YR-ZR DYI = WI-XI+YI-ZI	DZR = WR+XI-YR-ZI DZI = WI-XR-YI+ZR	

2810

FIG. 89

C7

2632

-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
DWR = DWR-(WI+XI+YI+ZI) DWI = DWI+(WR+XR+YR+ZR)	DXR = DXR-(WI+XR-YI-ZR) DXI = DXI+(WR-XI-YR+ZI)	DYR = DYR-(WI-XI+YI-ZI) DYI = DYI+(WR-XR+YR-ZR)	DZR = DZR-(WI-XR-YI+ZR) DZI = DZI+(WR+XI-YR-ZI)	

2810

FIG. 90



	W	X	Y	Z	2632
A	AWR	AXR	AYR	AZR	2633
	AWI	AXI	AYI	AZI	
B	BWR	BXR	BYR	BZR	2633
	BWI	BXI	BYI	BZI	
C	CWR	CXR	CYR	CZR	2633
	CWI	CXI	CYI	CZI	
D	DWR	DXR	DYR	DZR	2633
	DWI	DXI	DYI	DZI	
	2633				

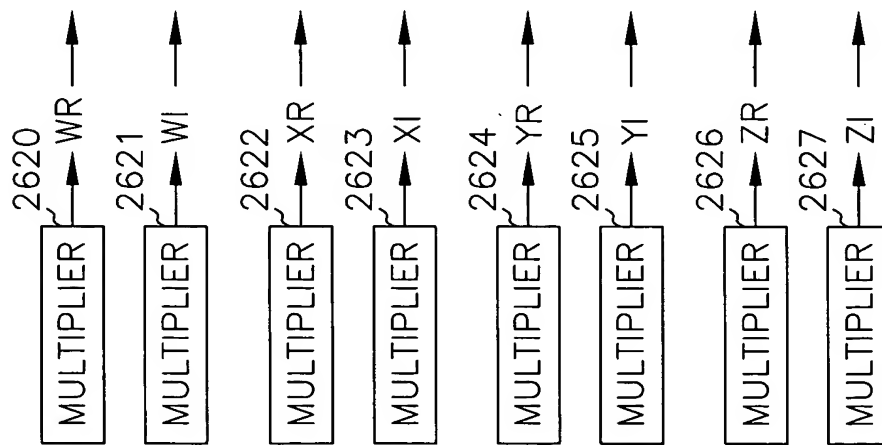
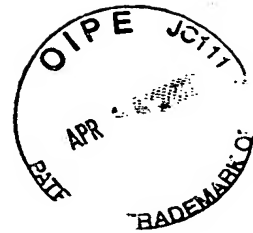


FIG. 91



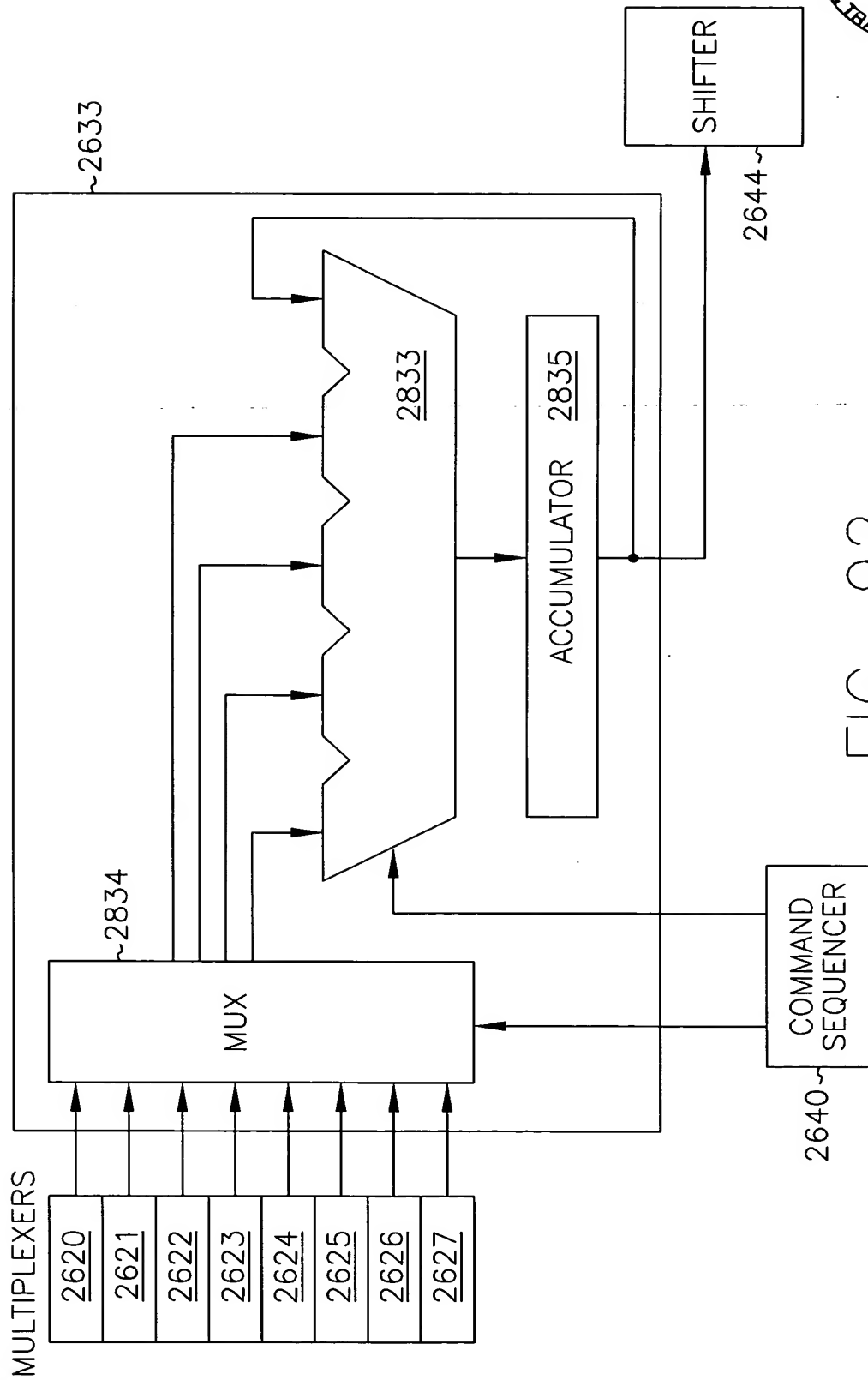


FIG. 92



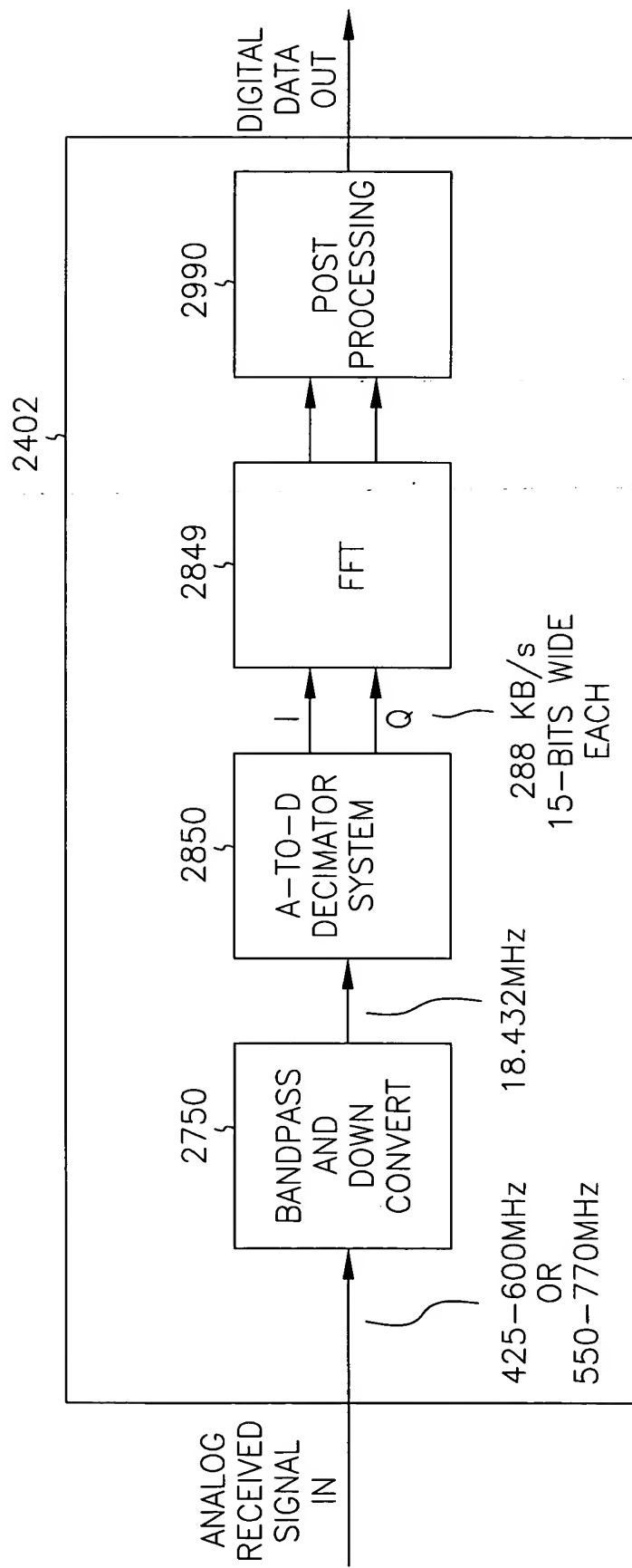


FIG. 93



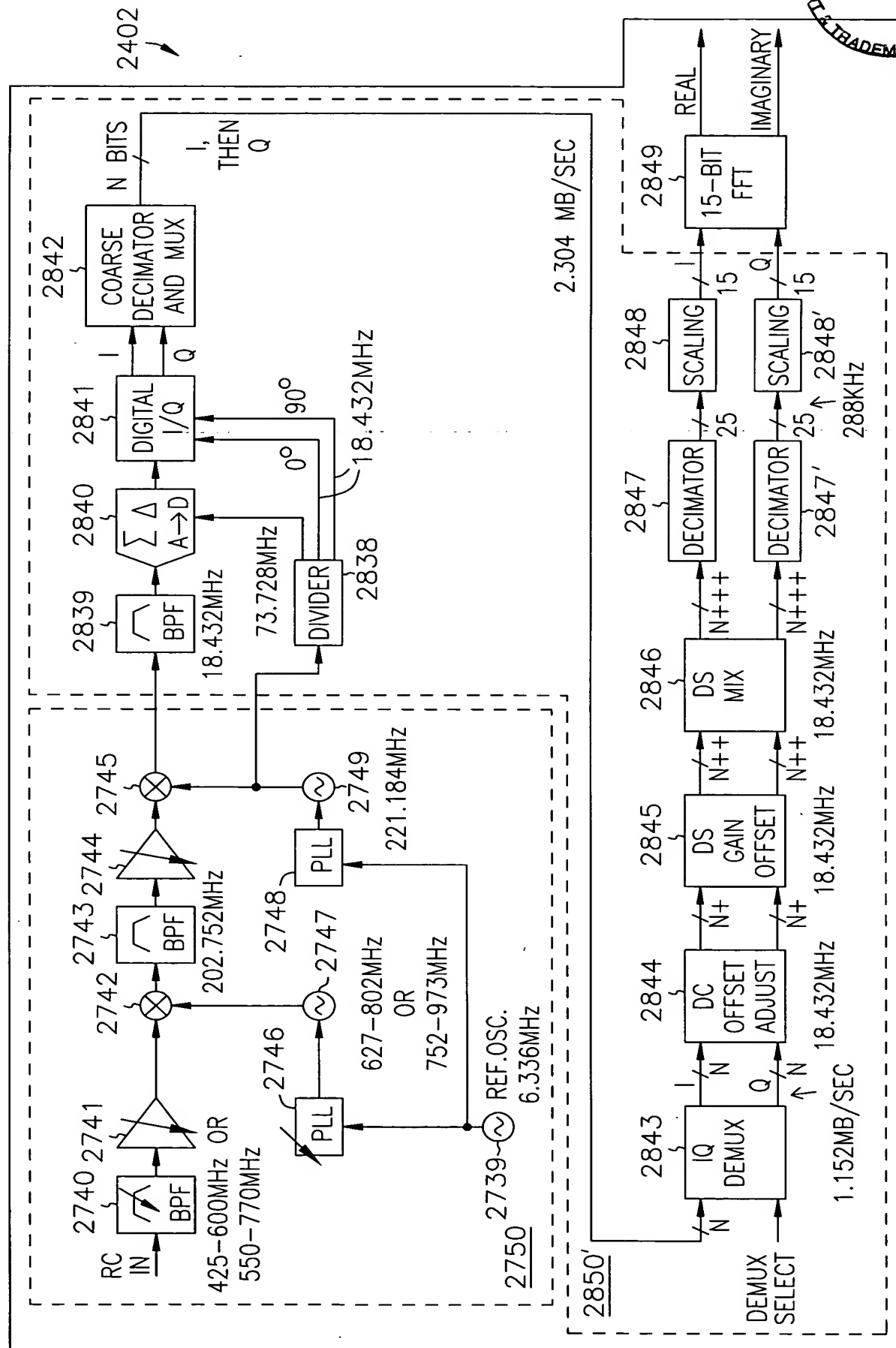


FIG. 94

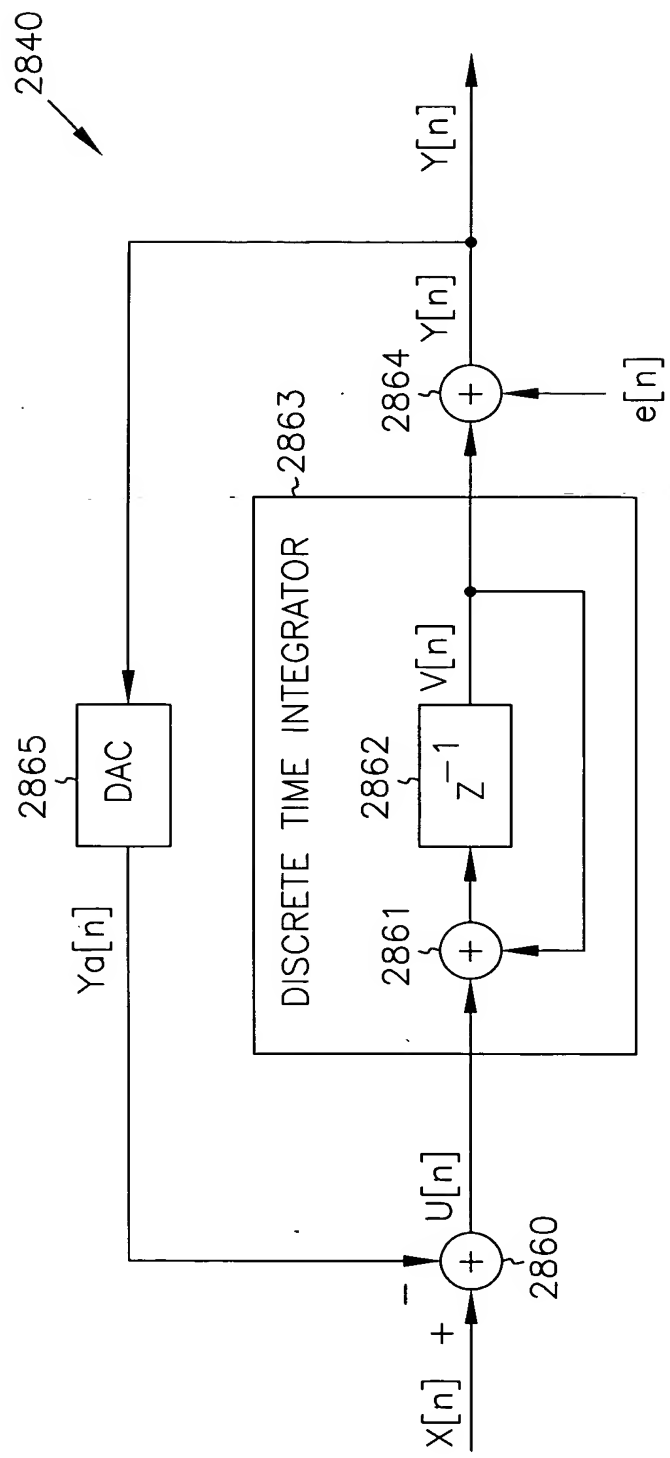


FIG. 95

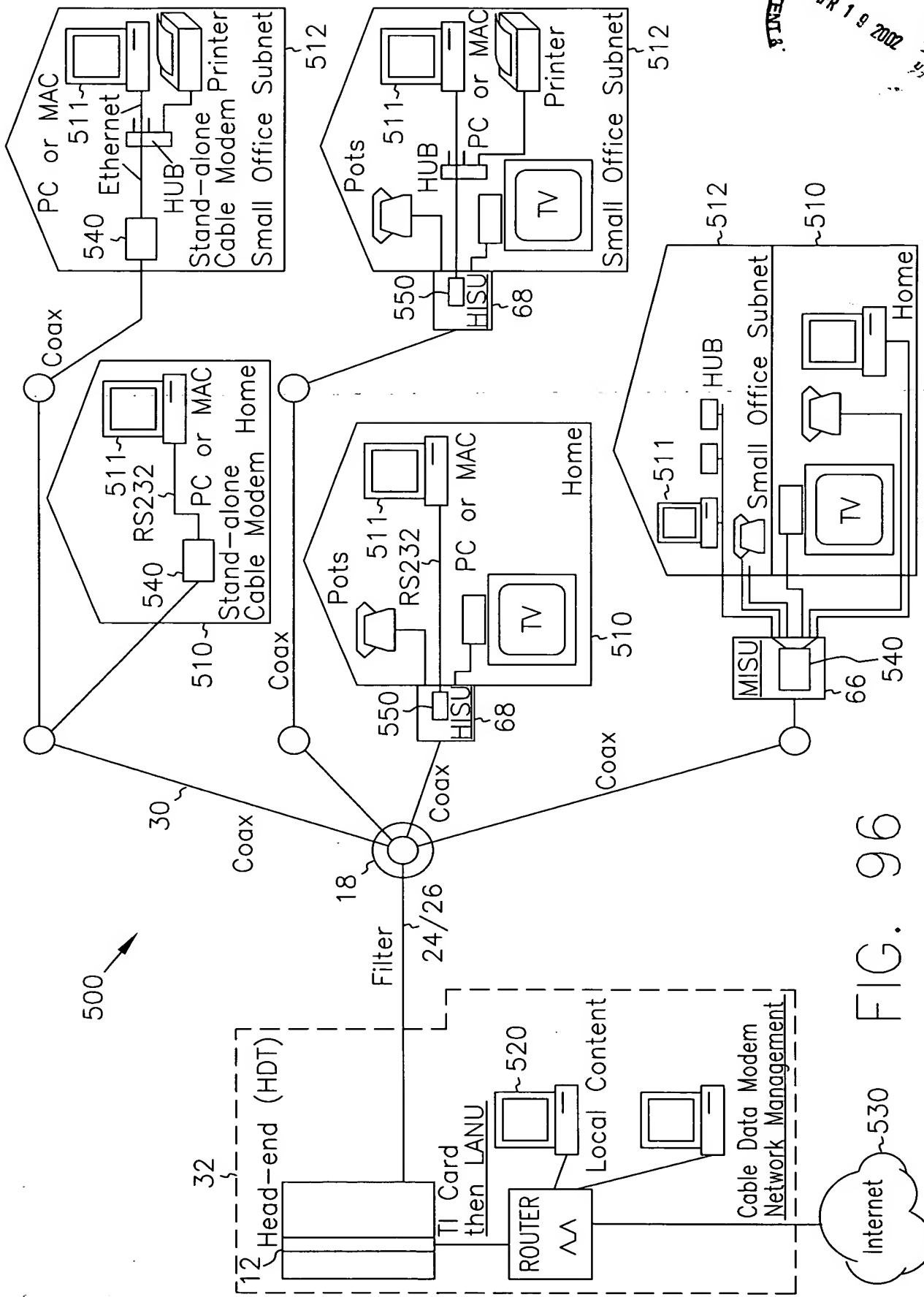


FIG. 96

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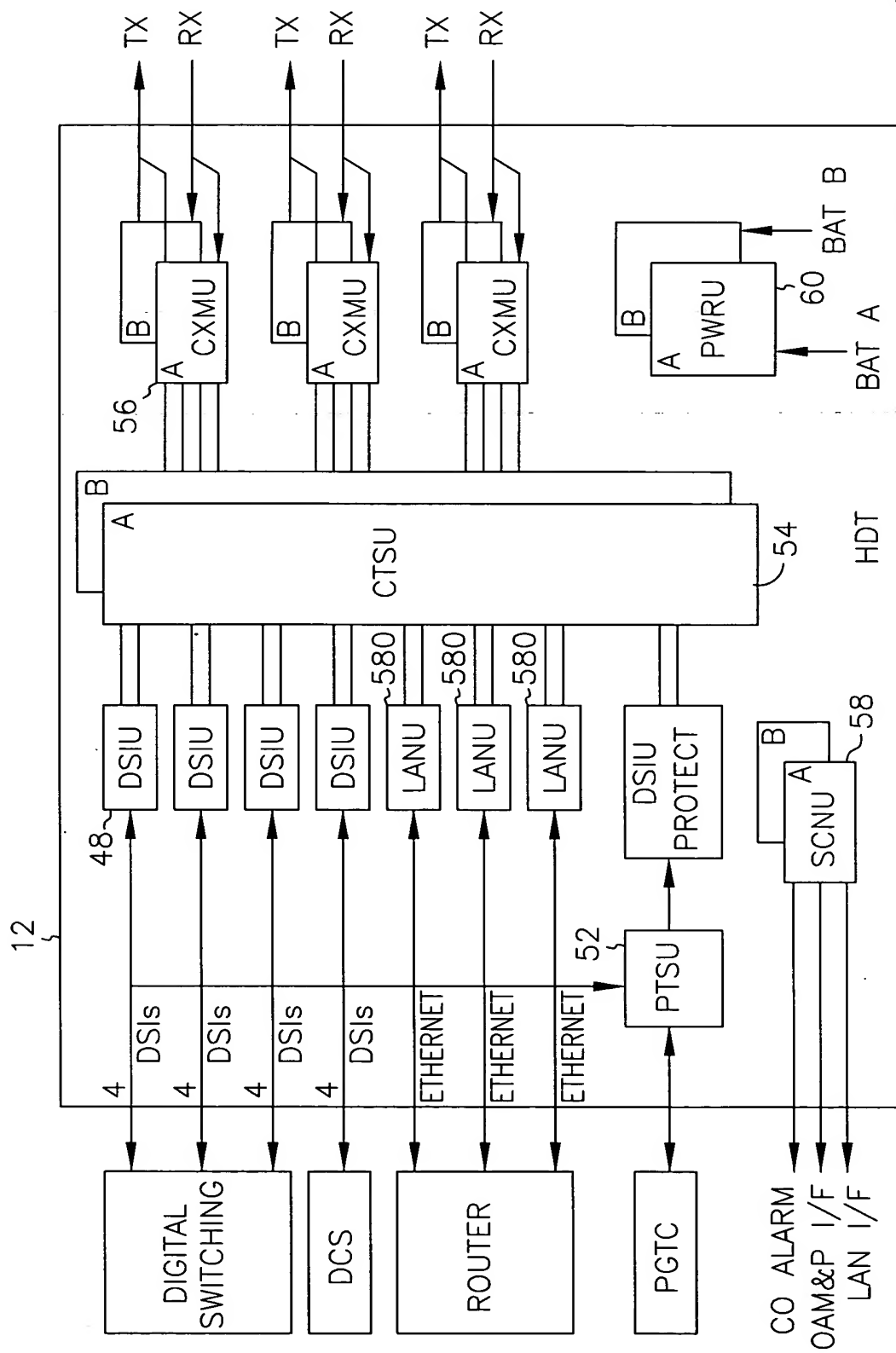


FIG. 7



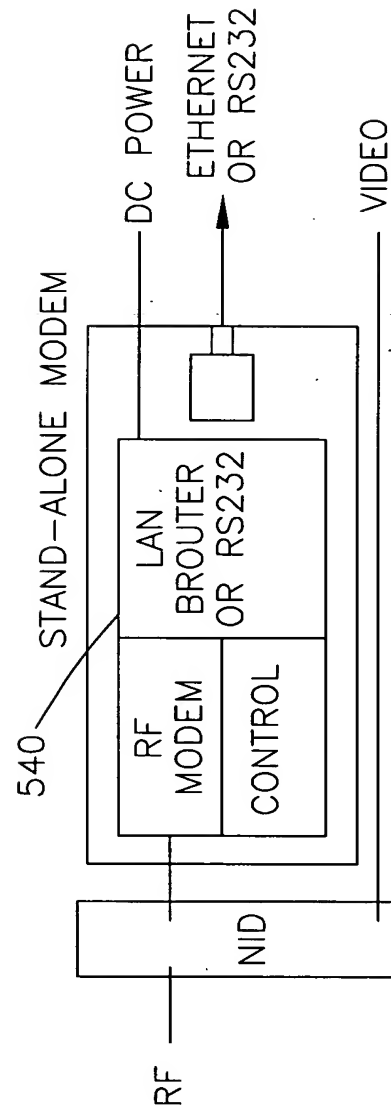
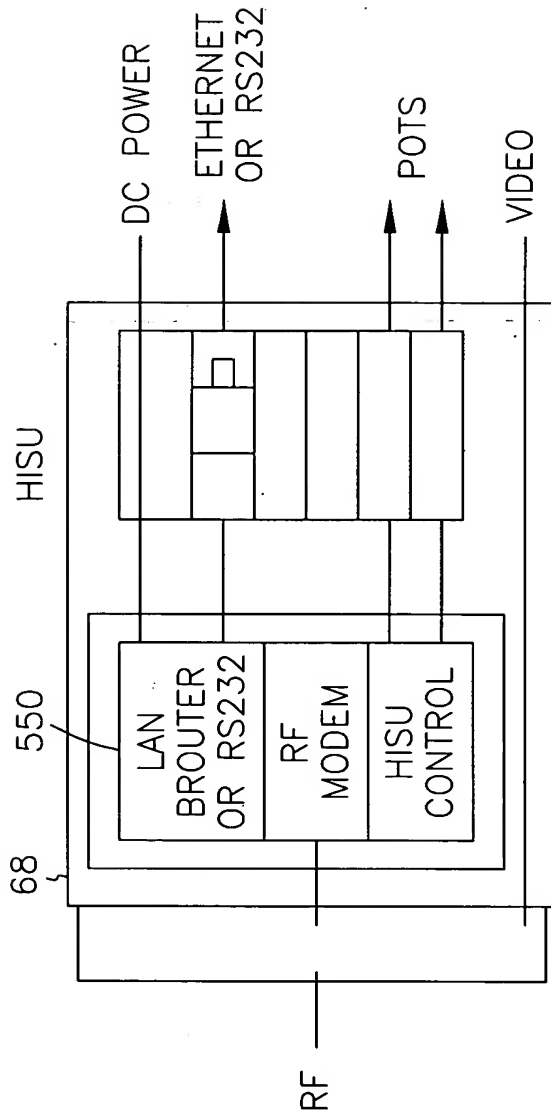


FIG. 98

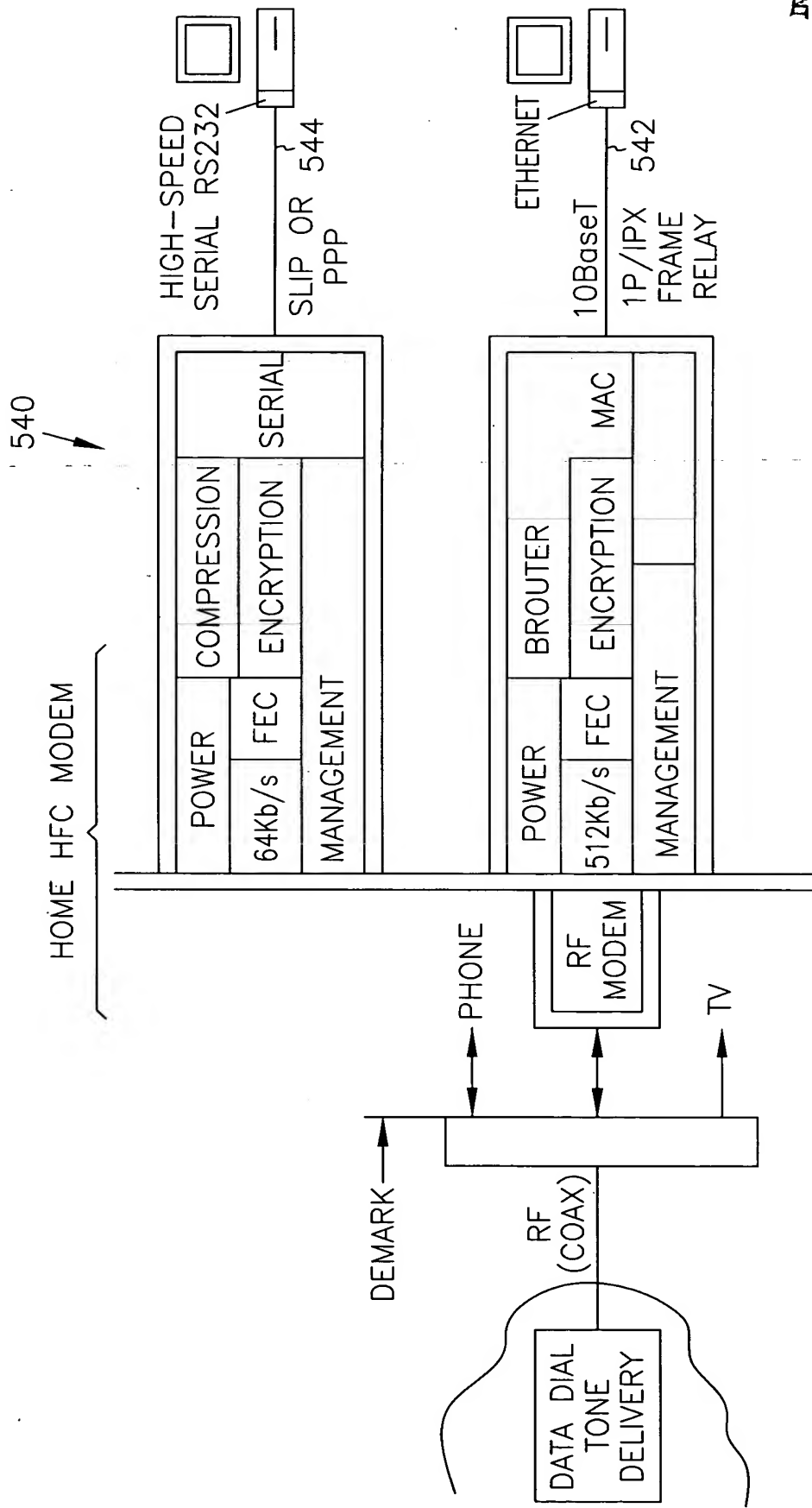
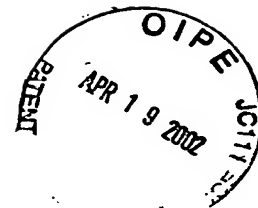


FIG. 99



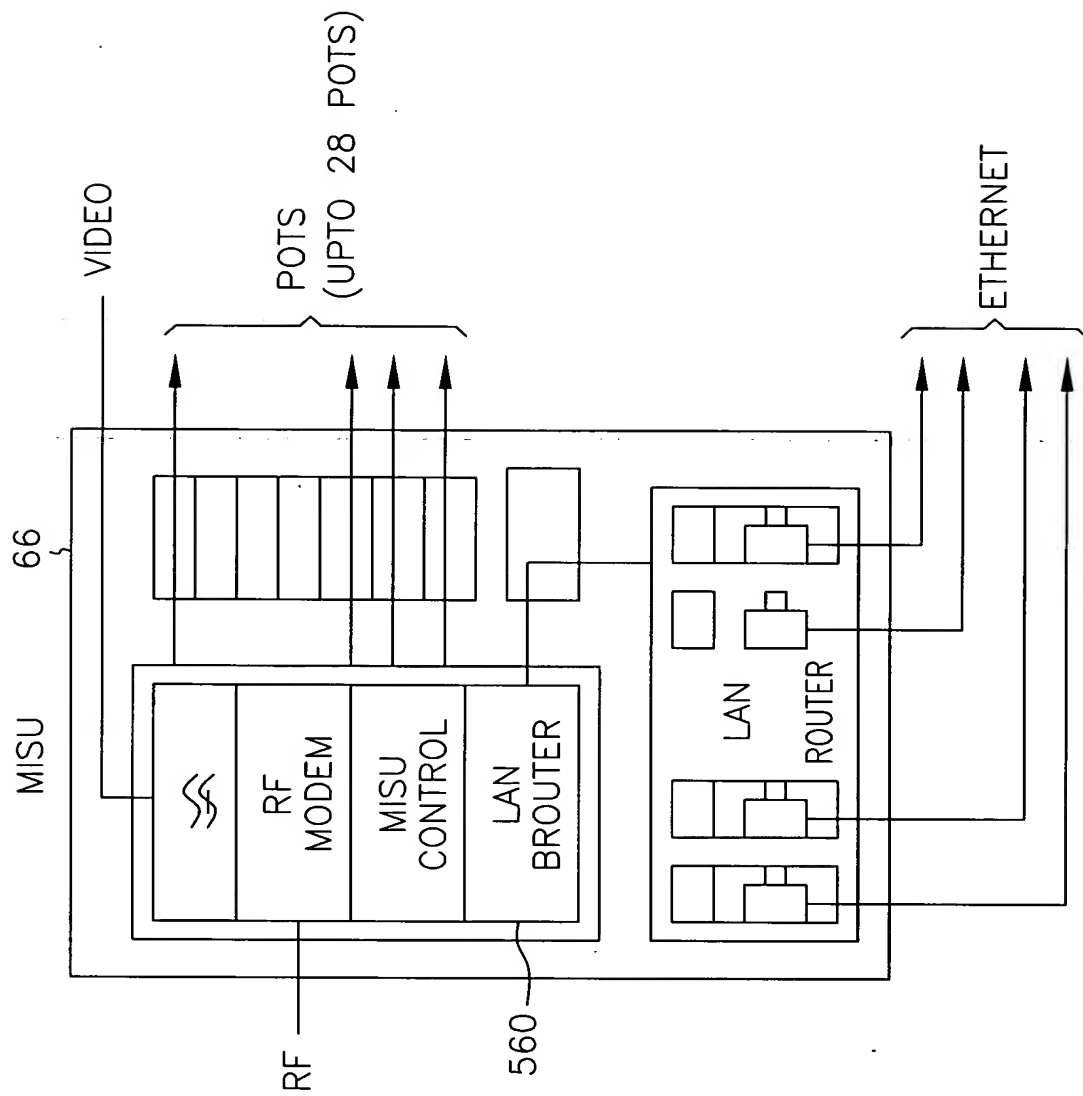


FIG. 100

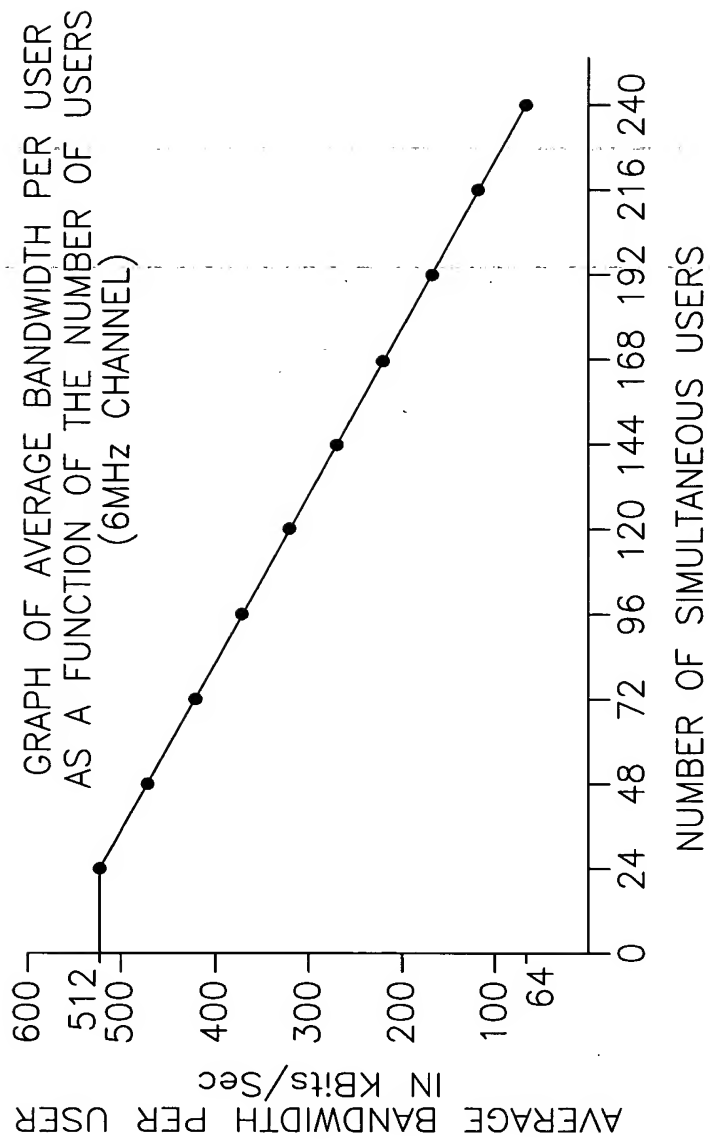
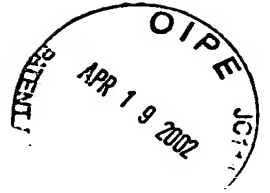


FIG. 101



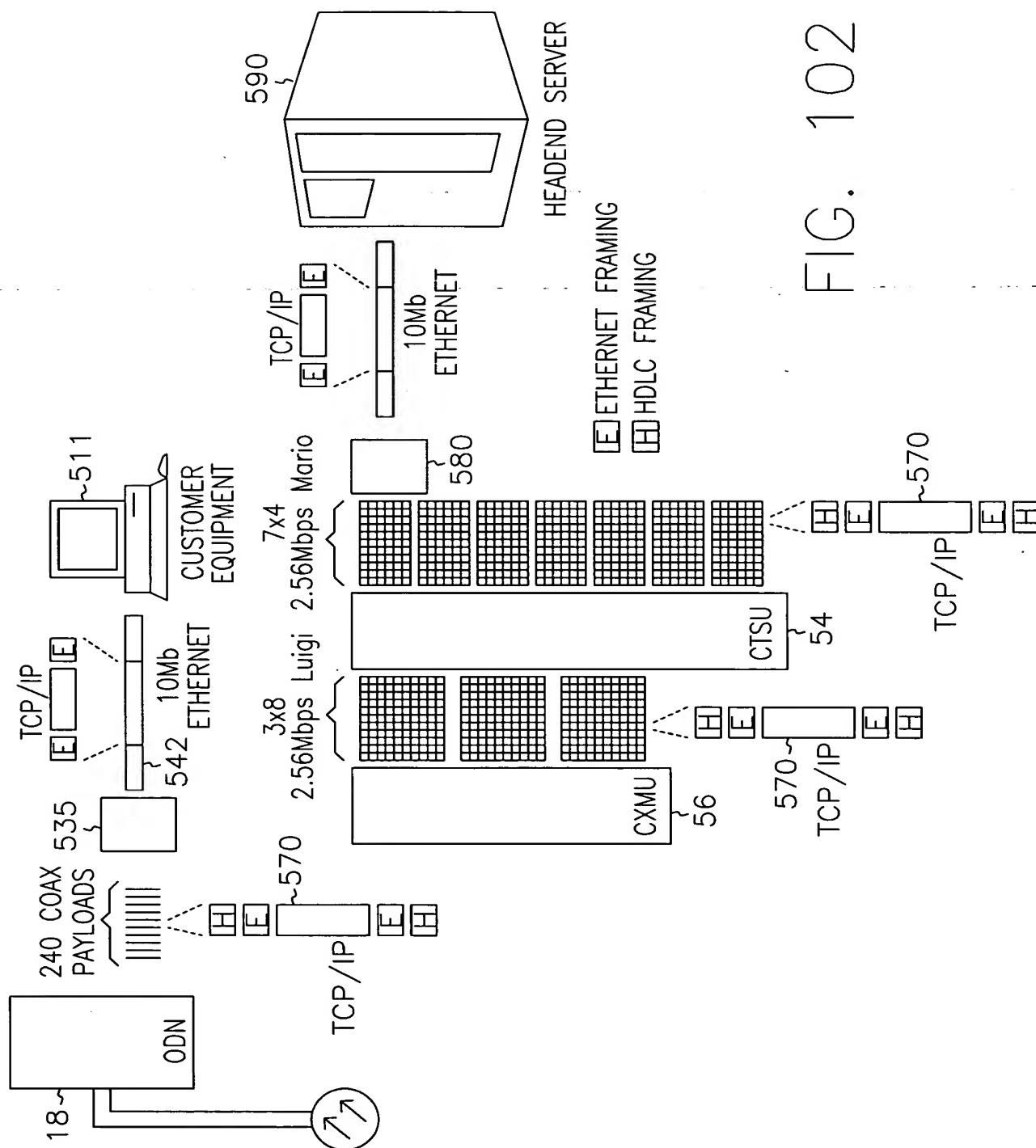


FIG. 102.



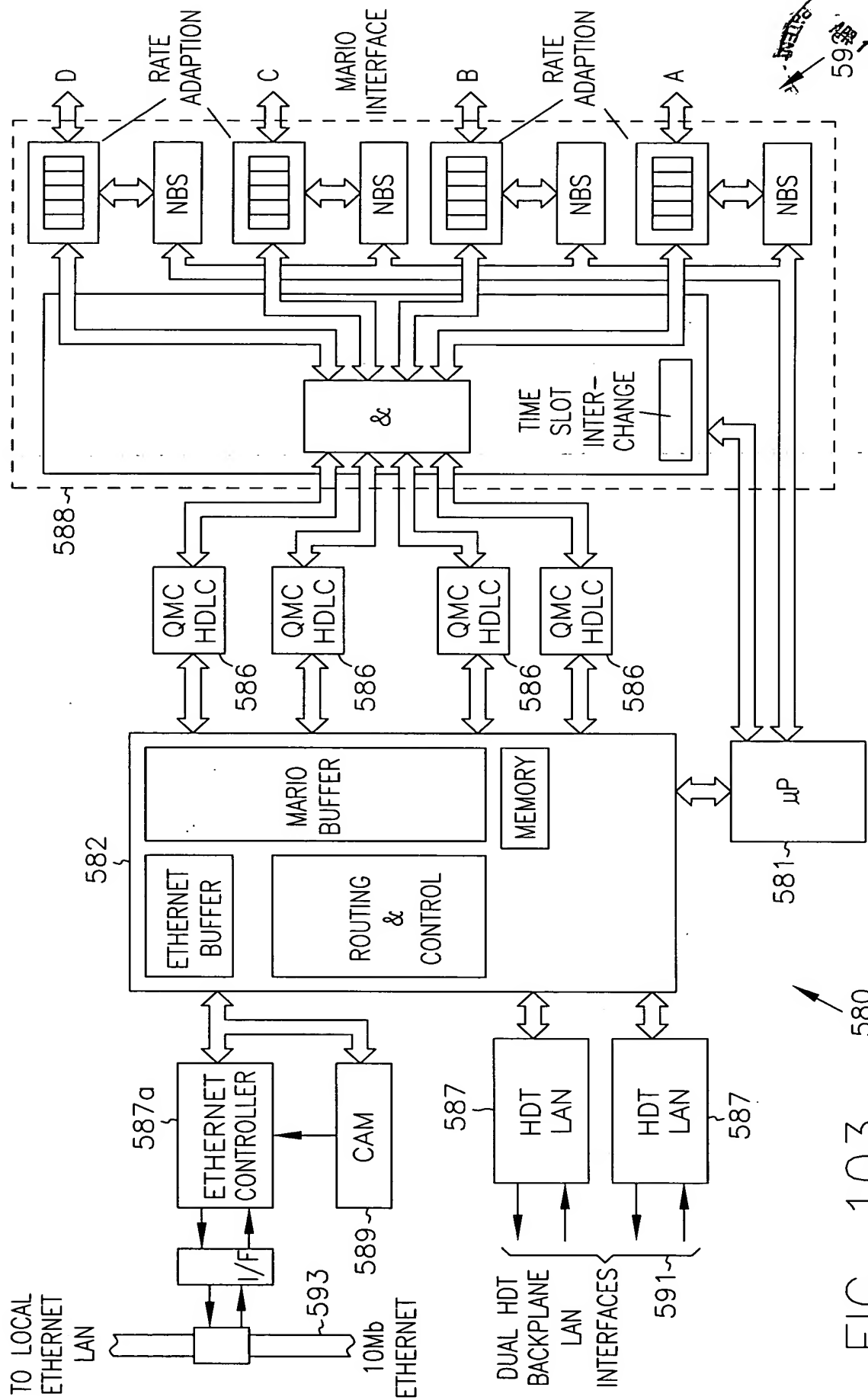


FIG. 103

592
1993
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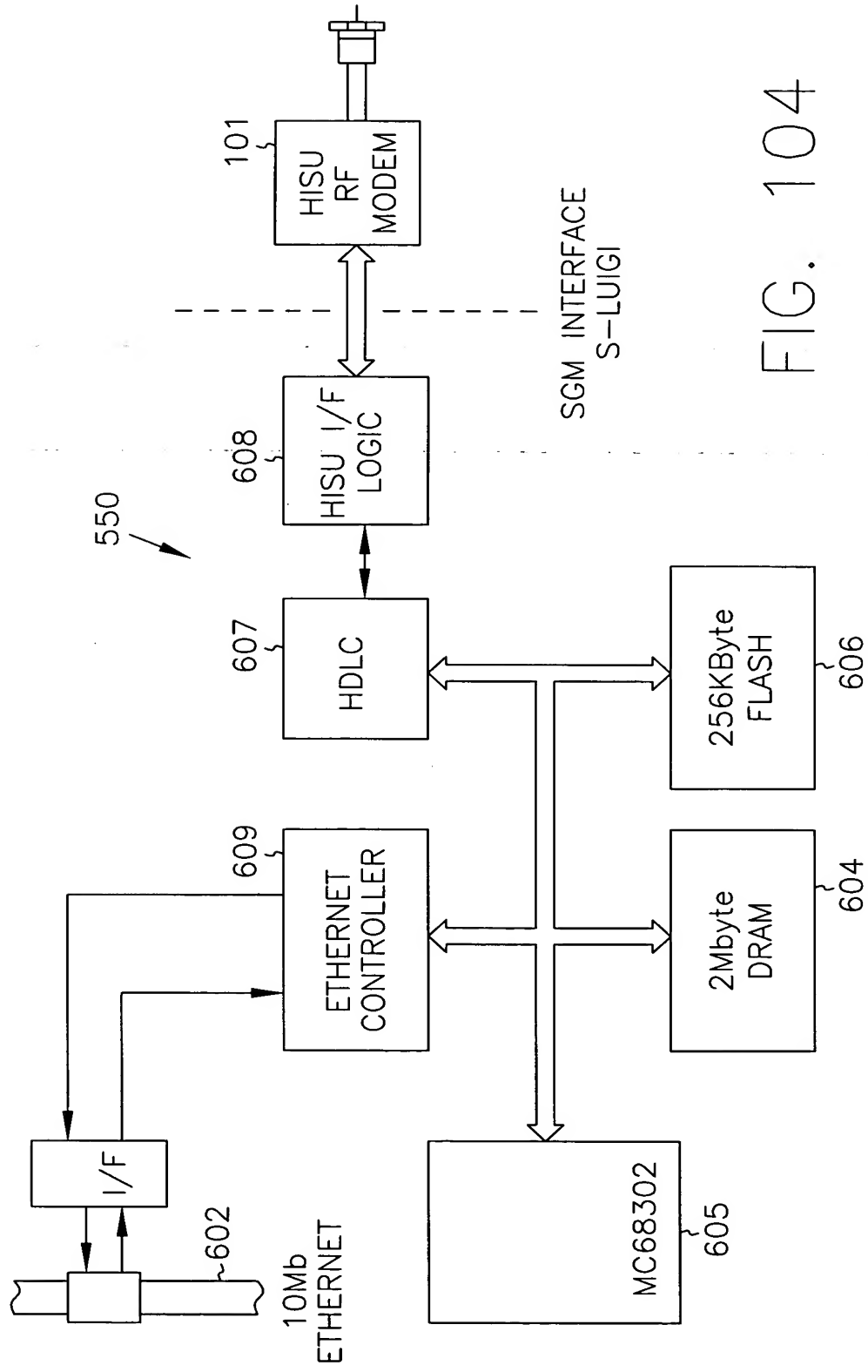


FIG. 104

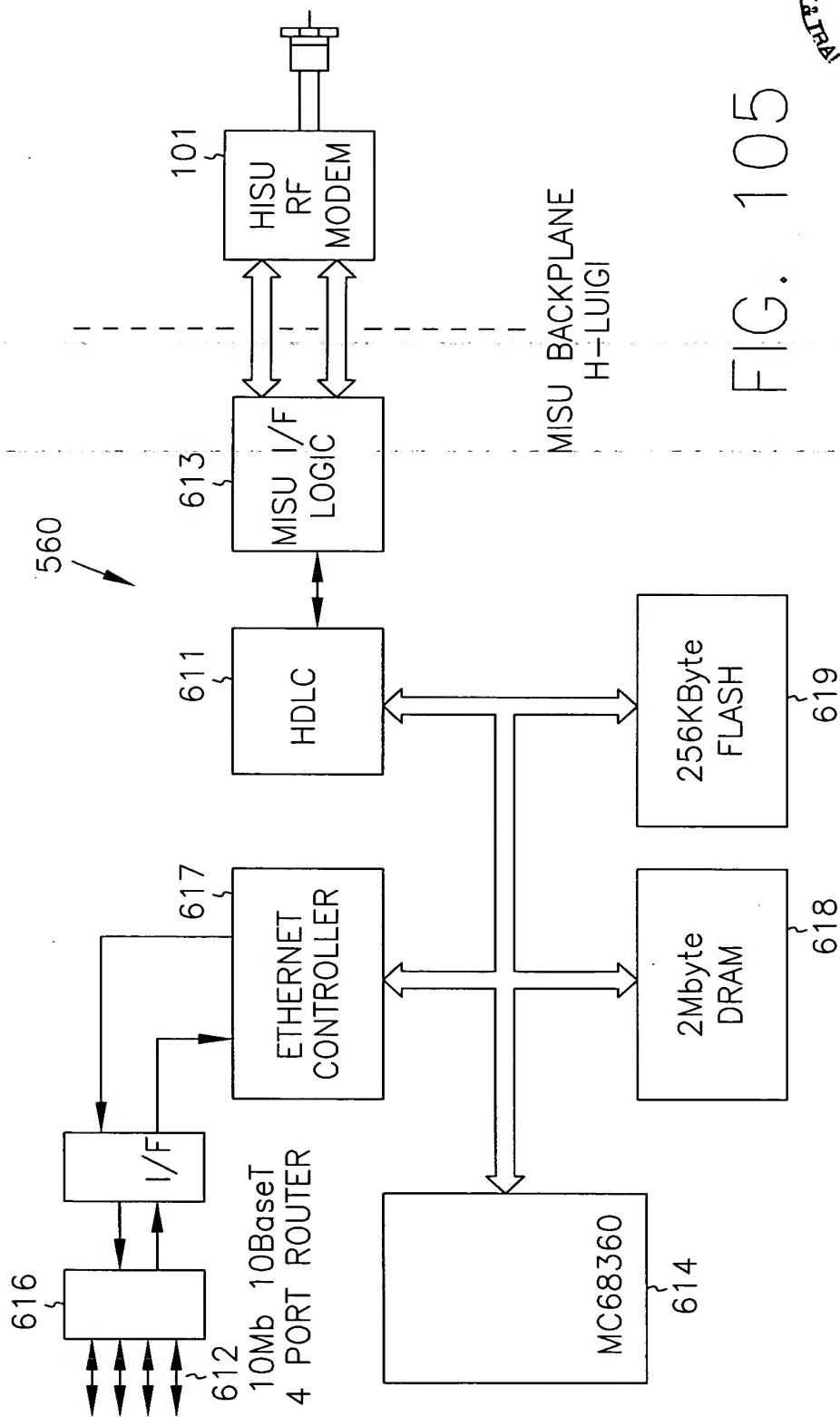
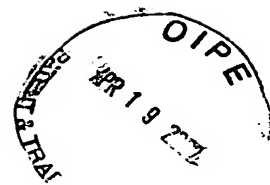


FIG. 105



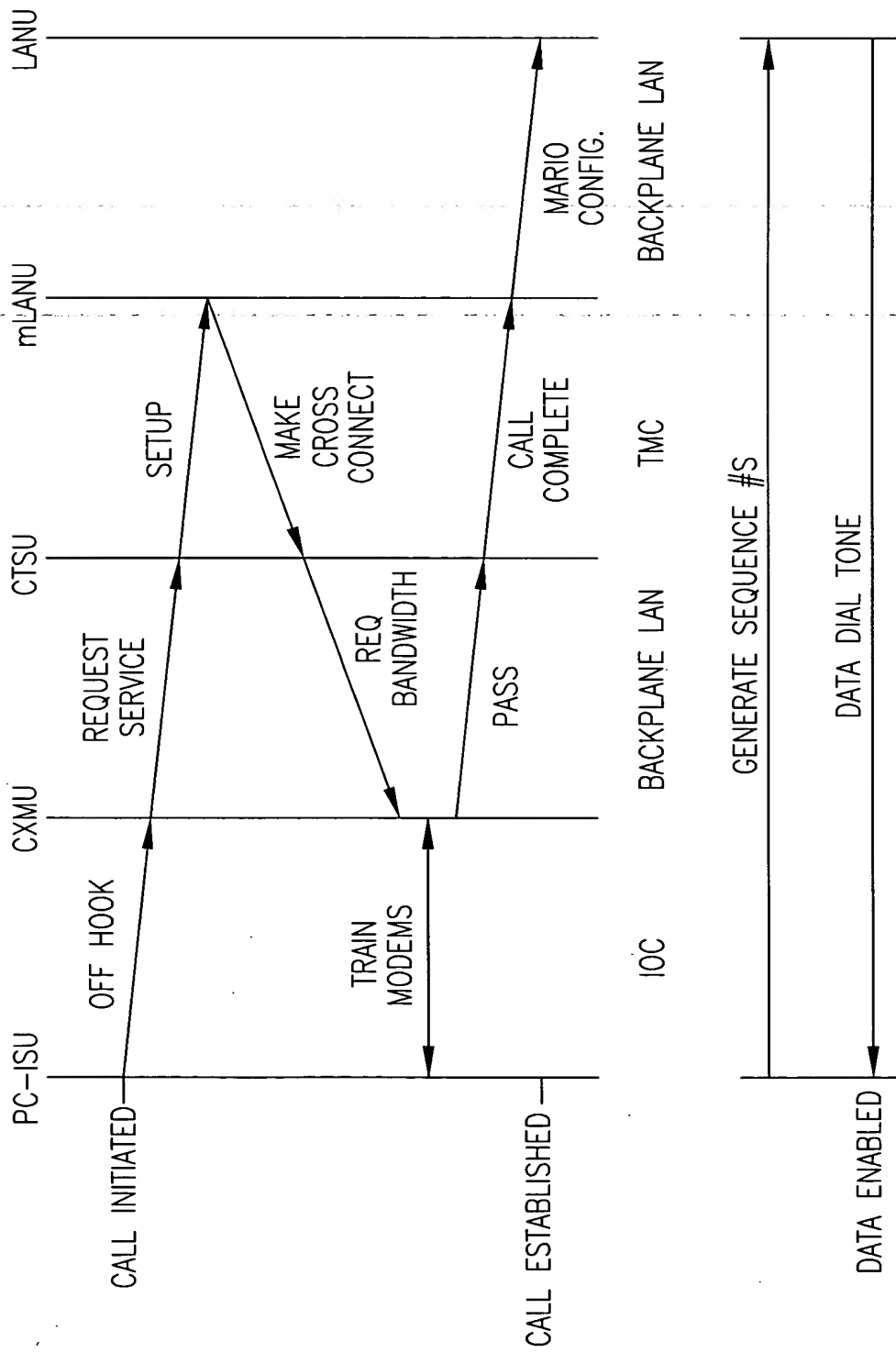
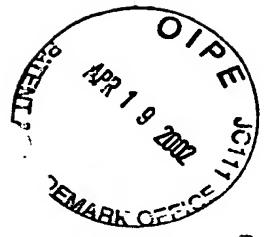


FIG. 106



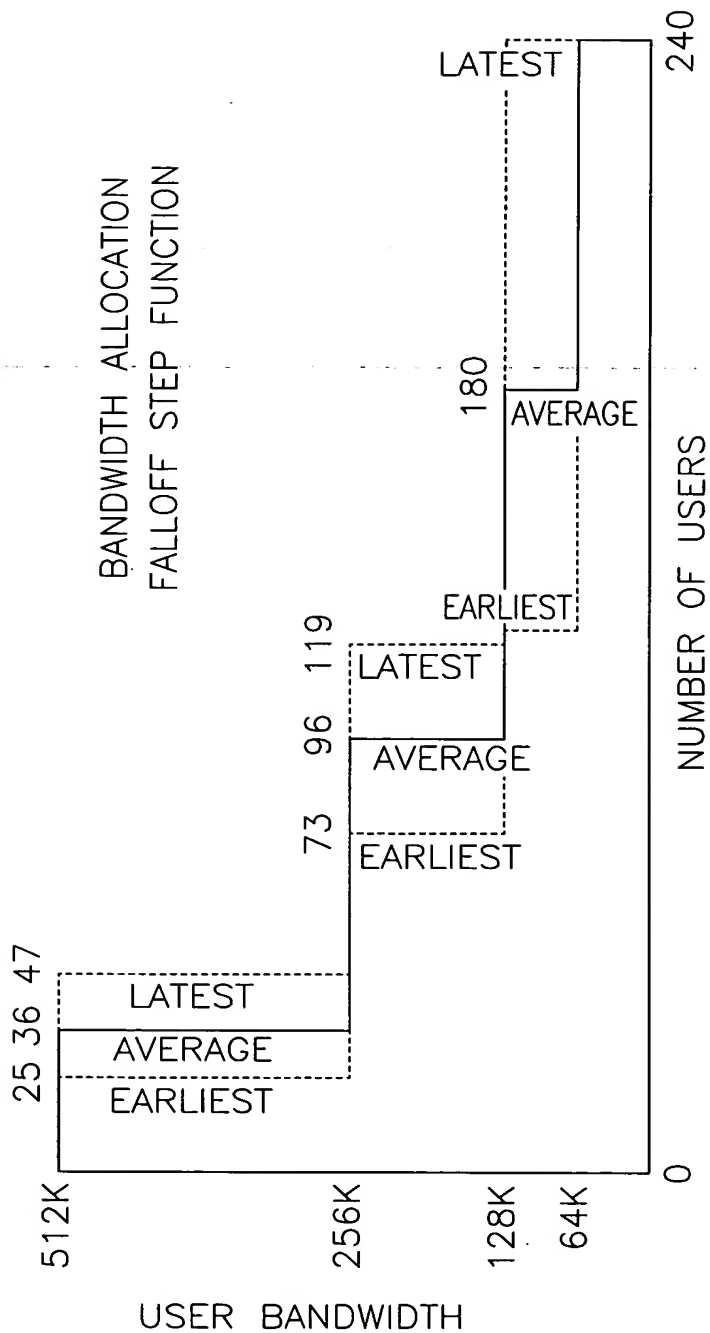


FIG. 107

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

THE RF SPECTRUM OF 24 USERS WITH 512Kbs

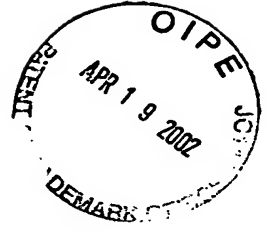
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

ADDING THE 25th USER

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

ADDING THE 26th USER, ETC

FIG. 108



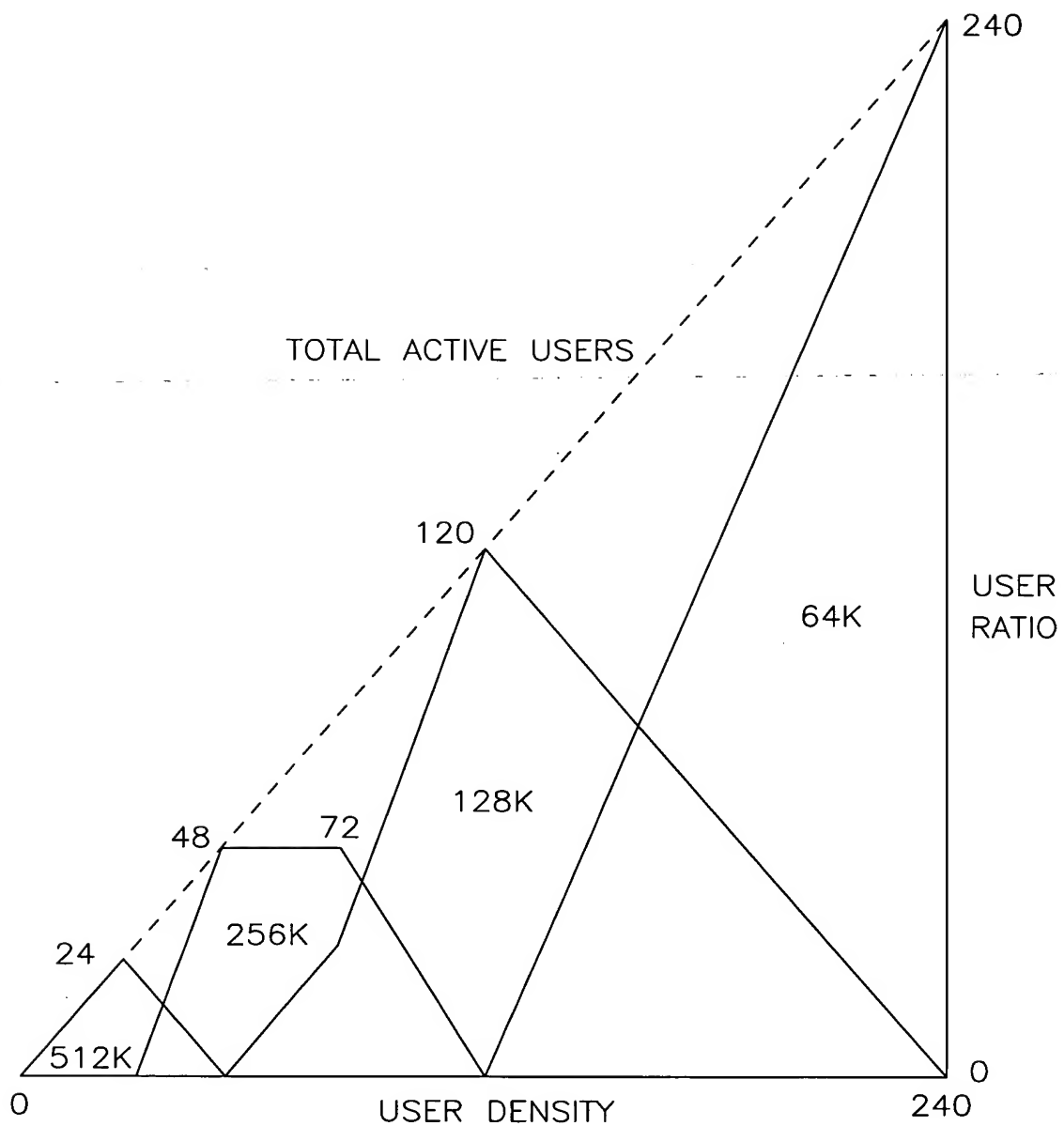
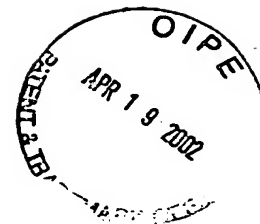


FIG. 109

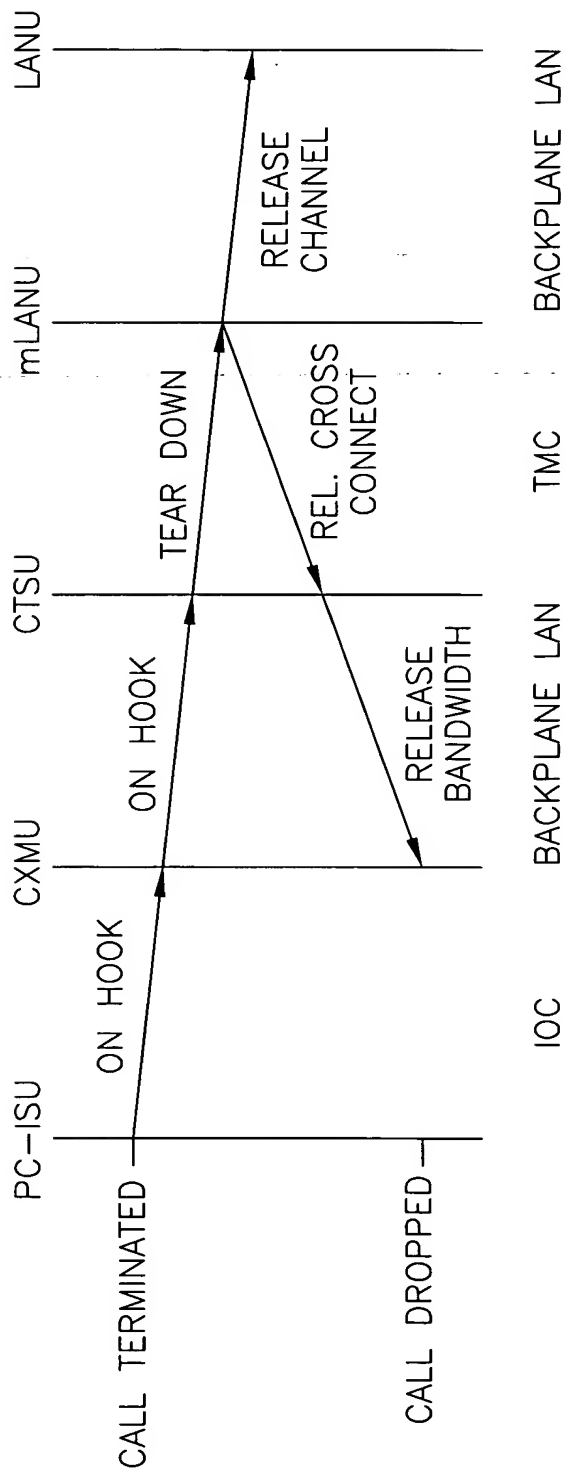


FIG. 110

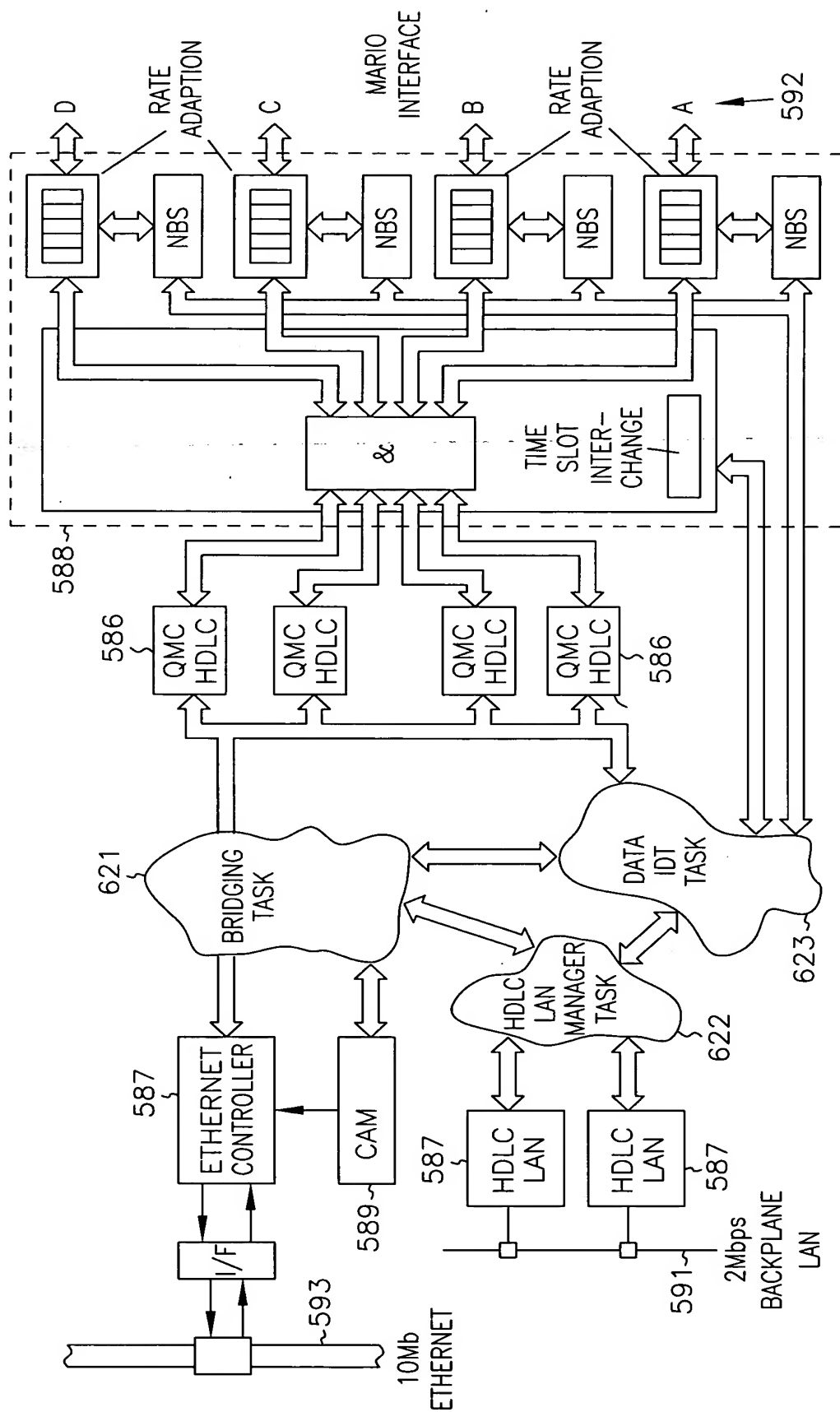


FIG. 111

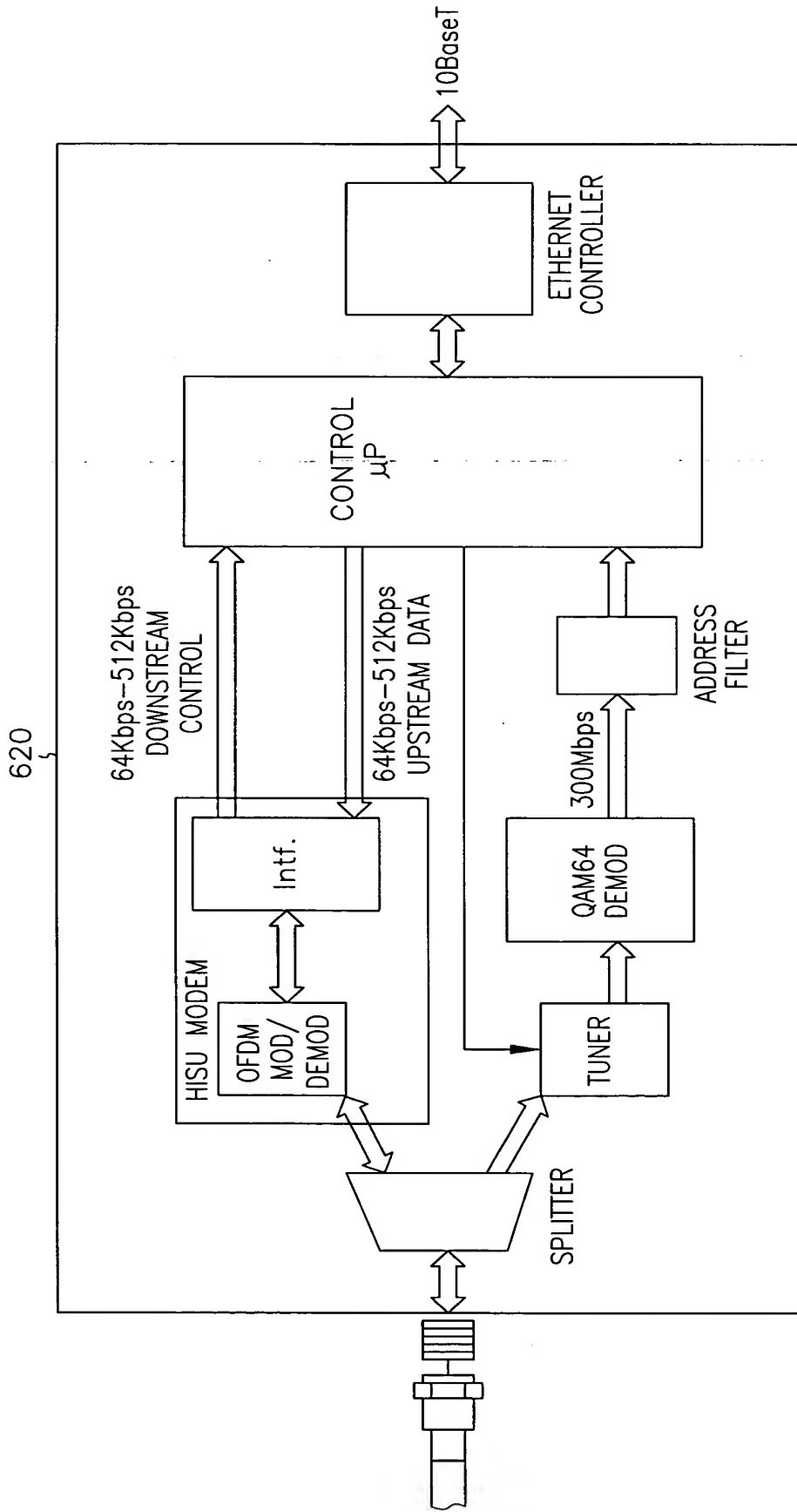


FIG. 112

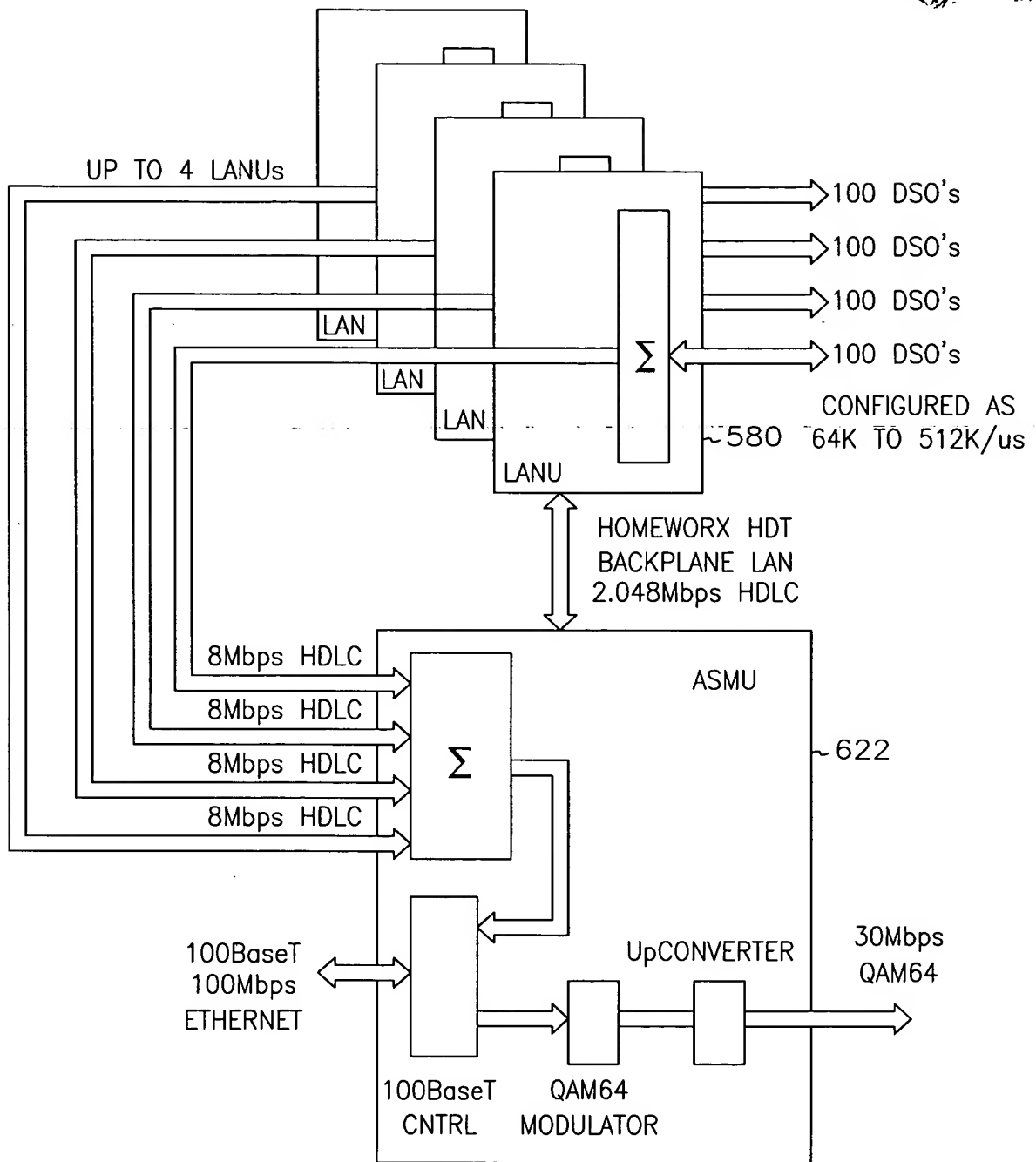


FIG. 113

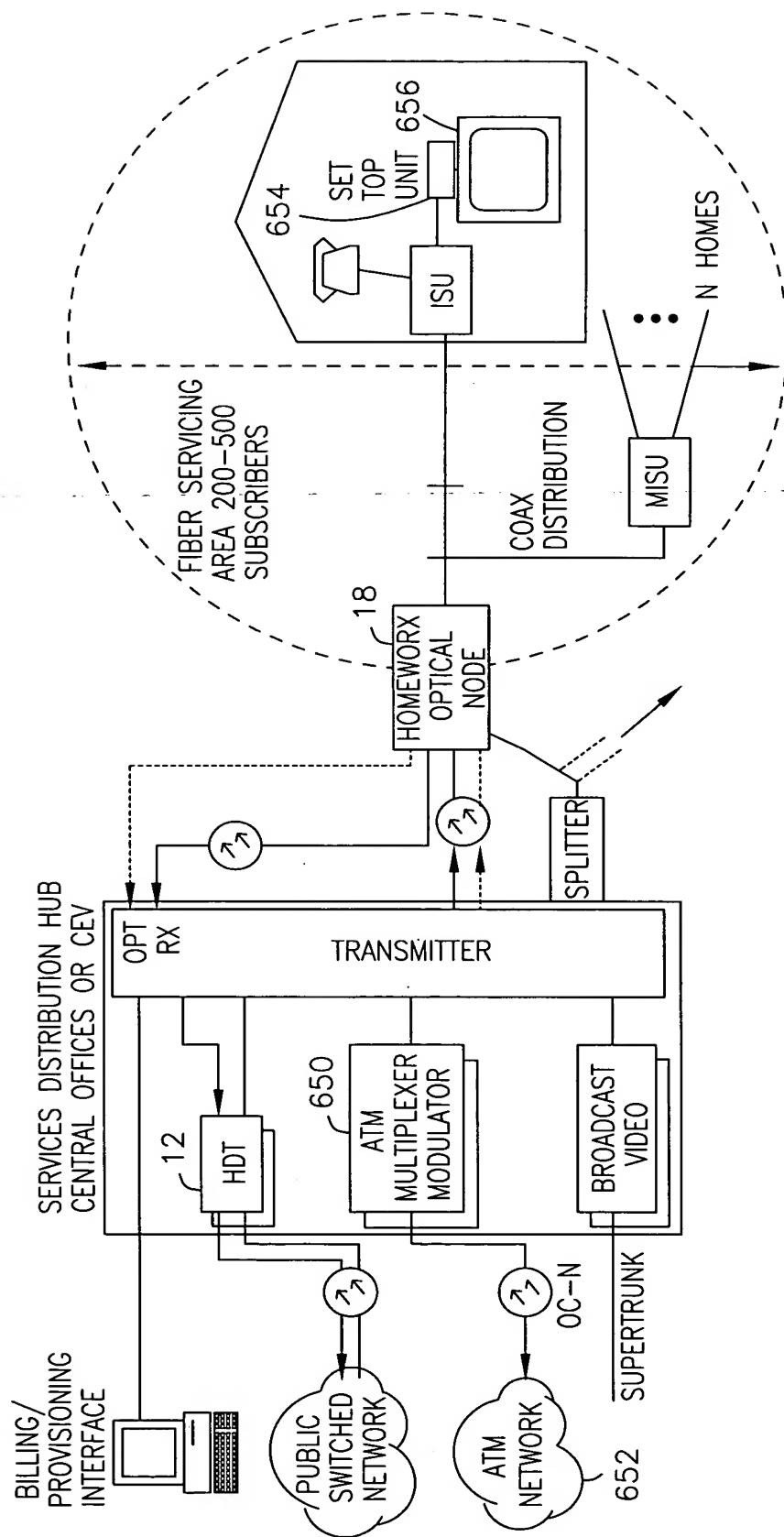


FIG. 114

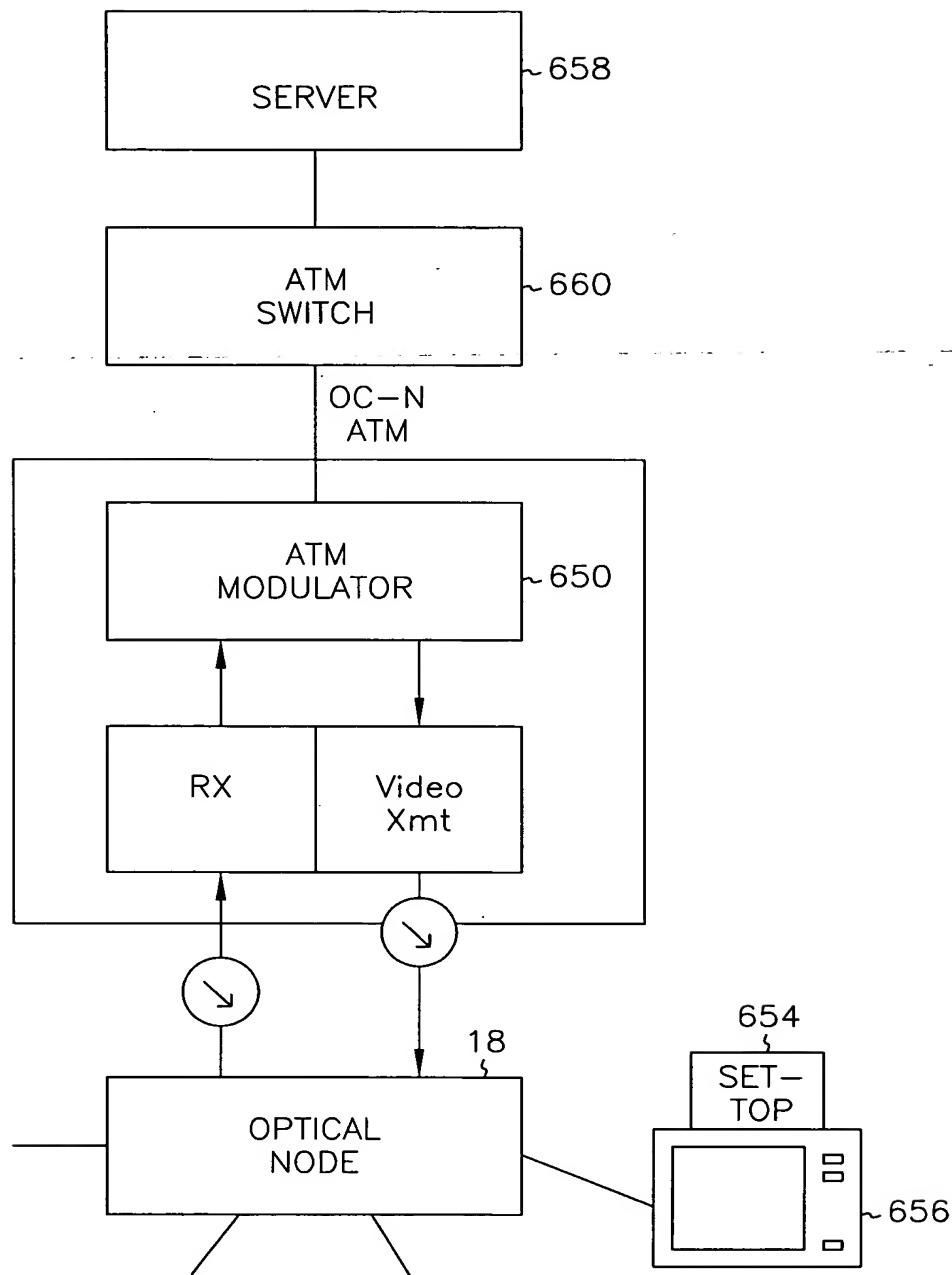


FIG. 115

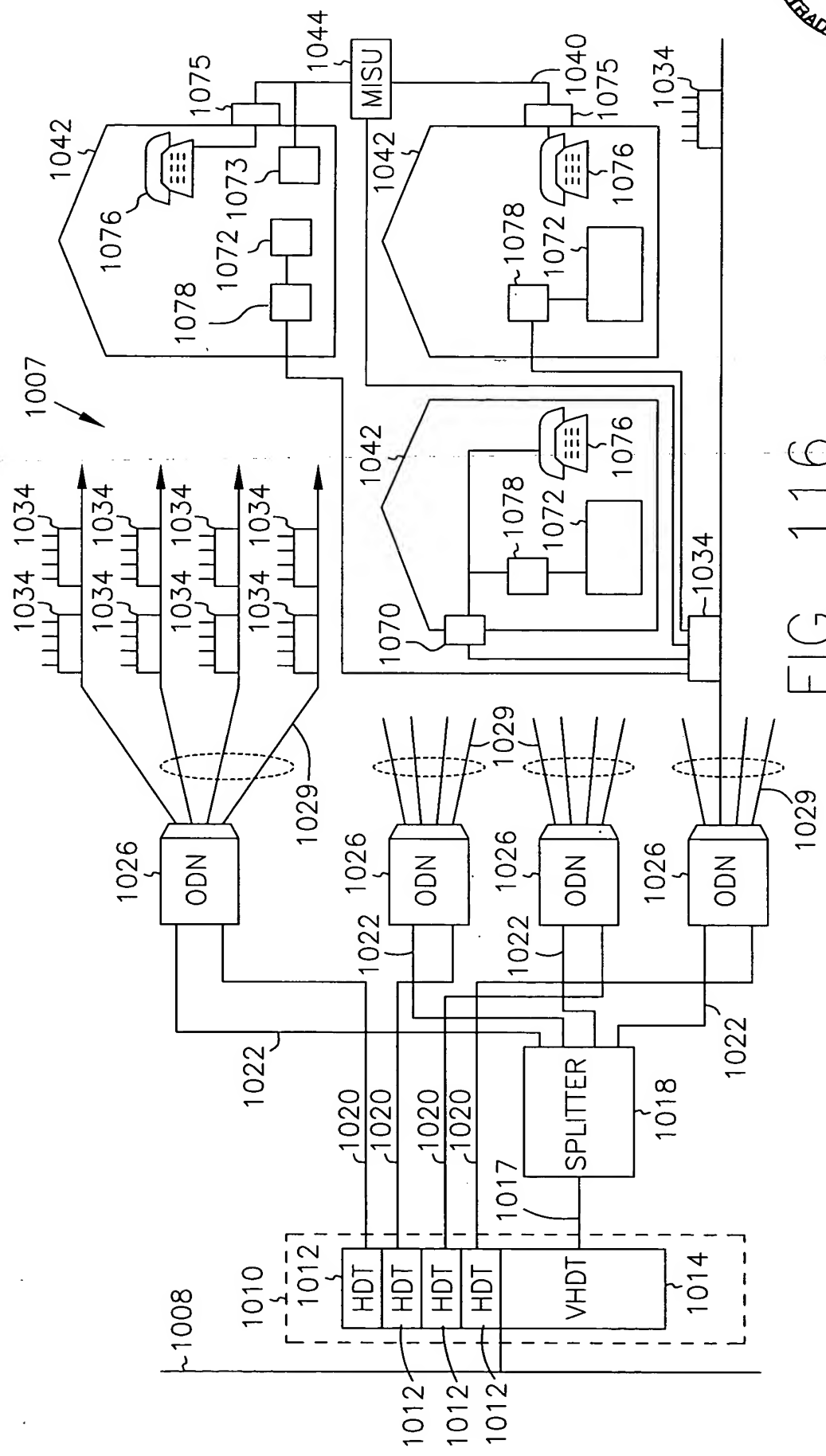


FIG. 116

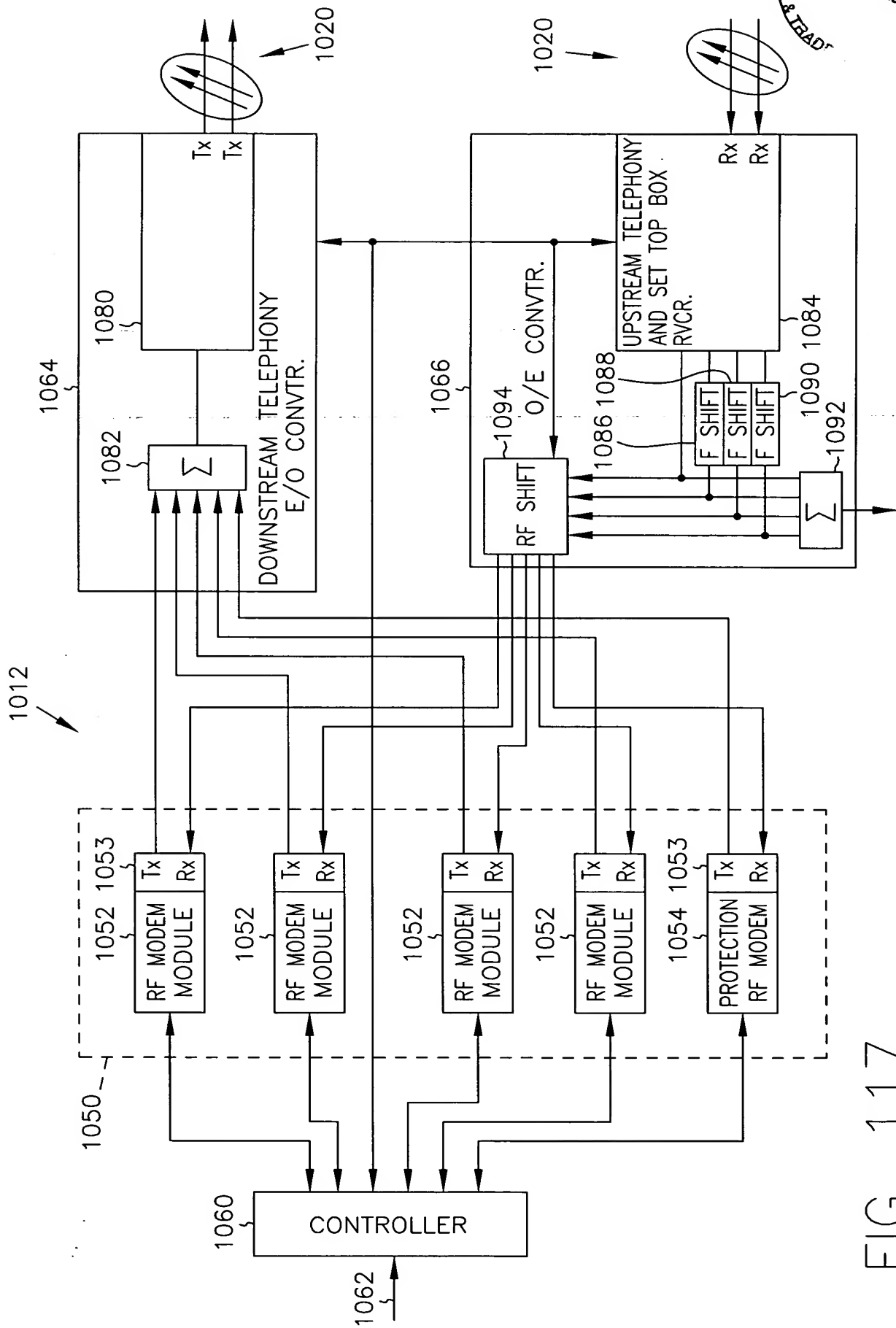


FIG. 117

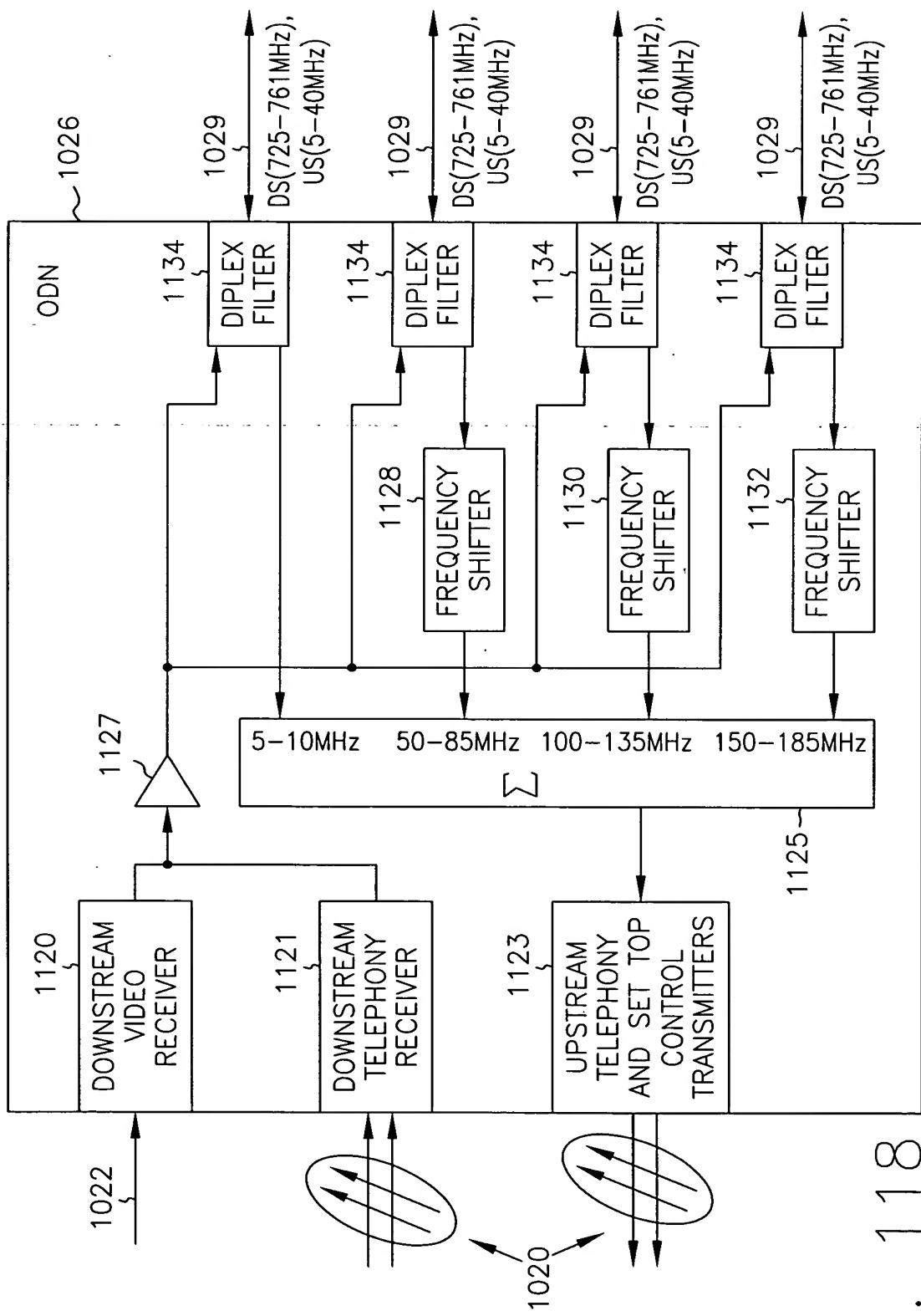


FIG. 118

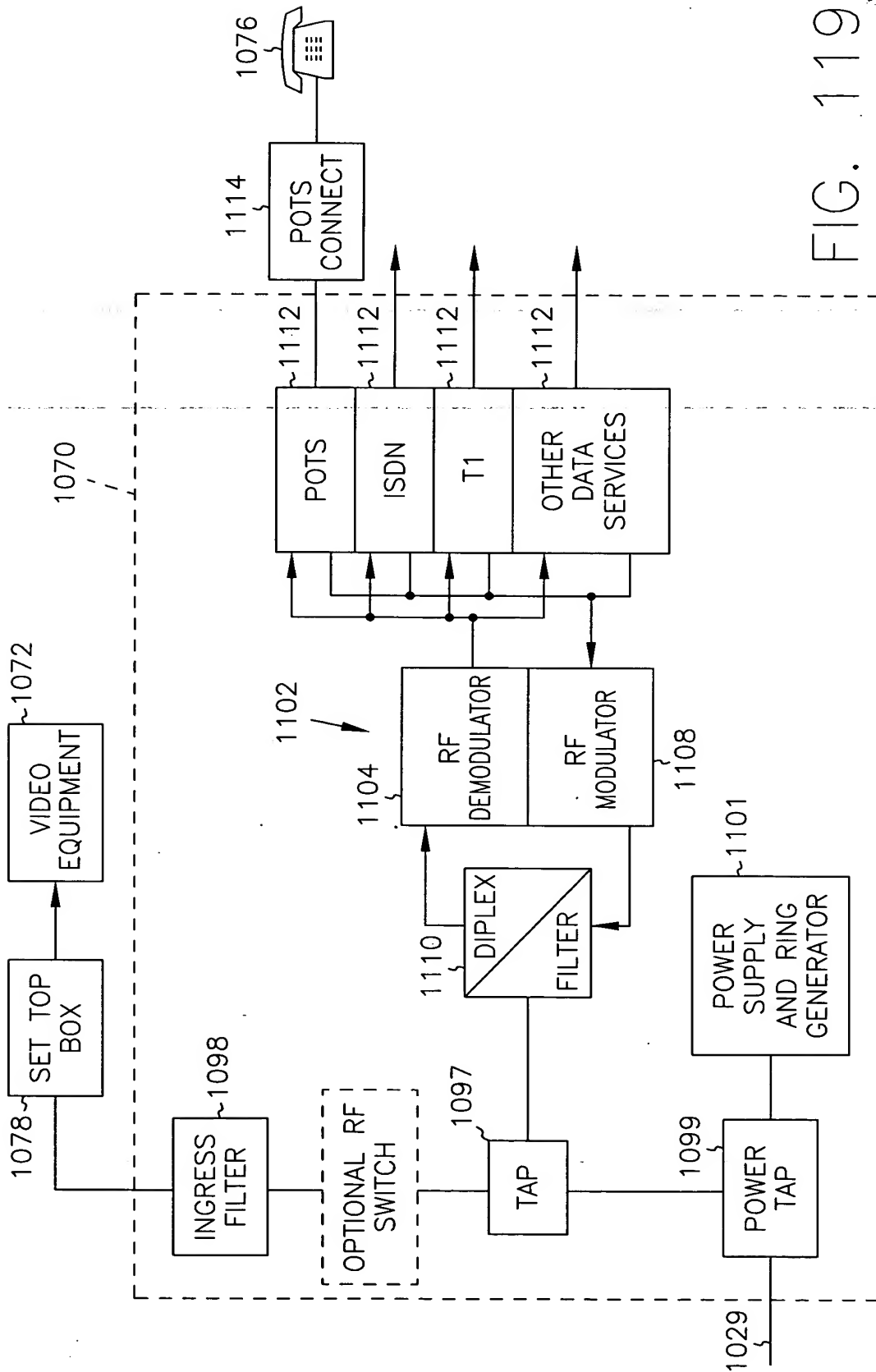


FIG. 119

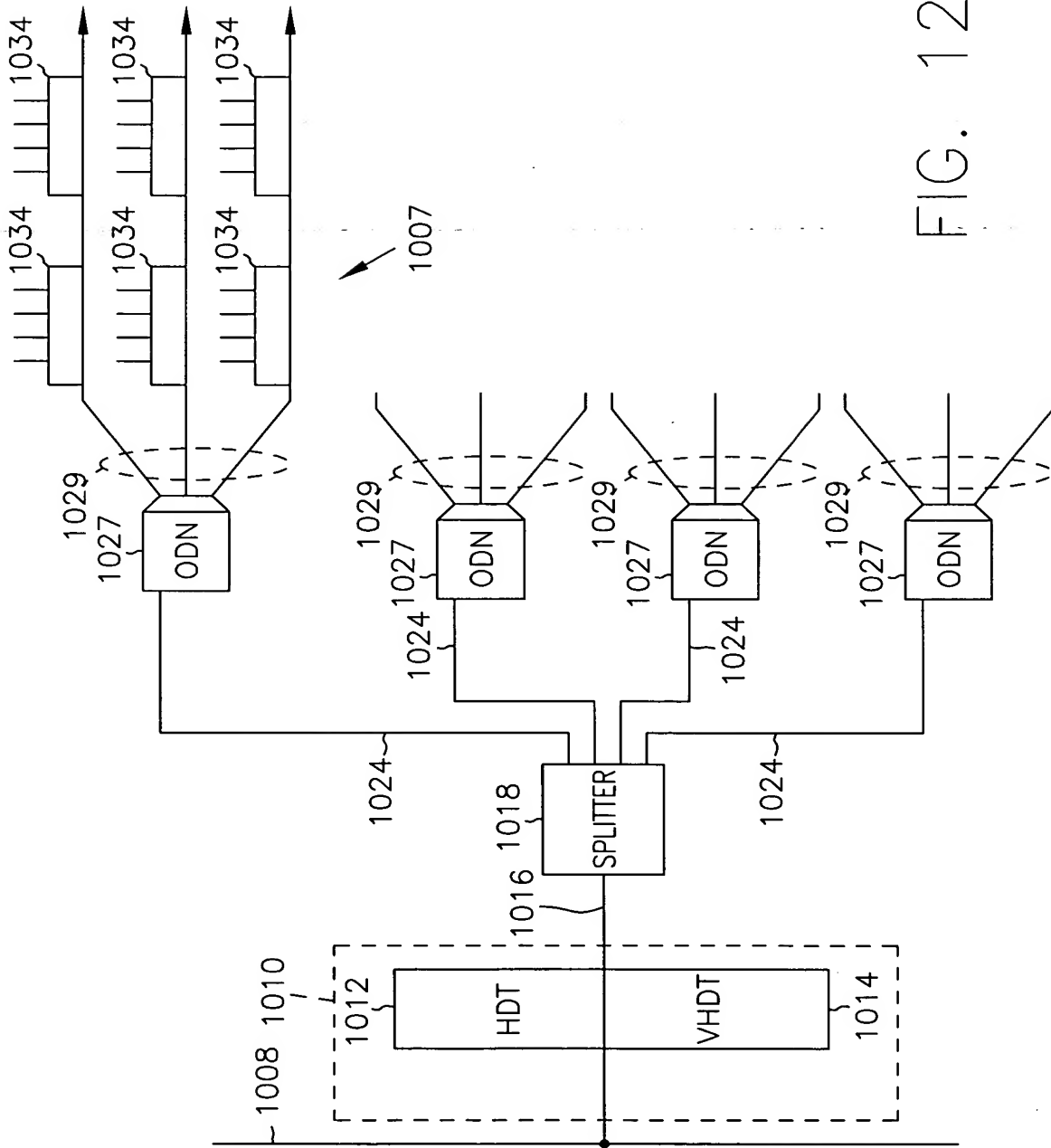


FIG. 120

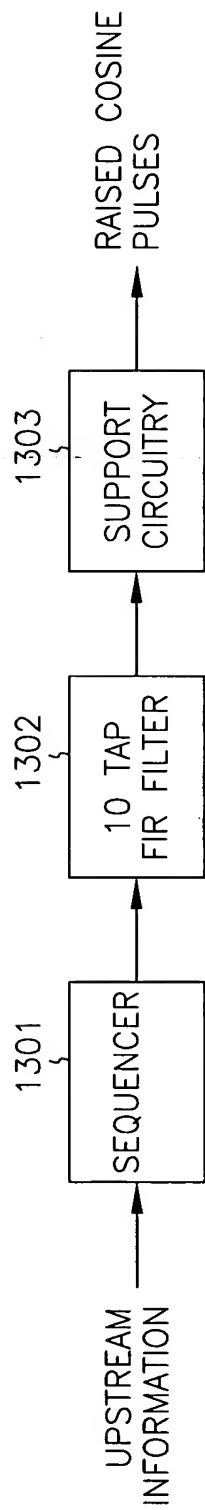
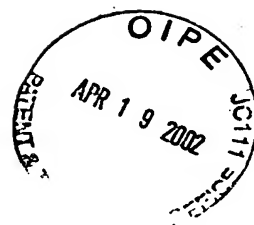


FIG. 121



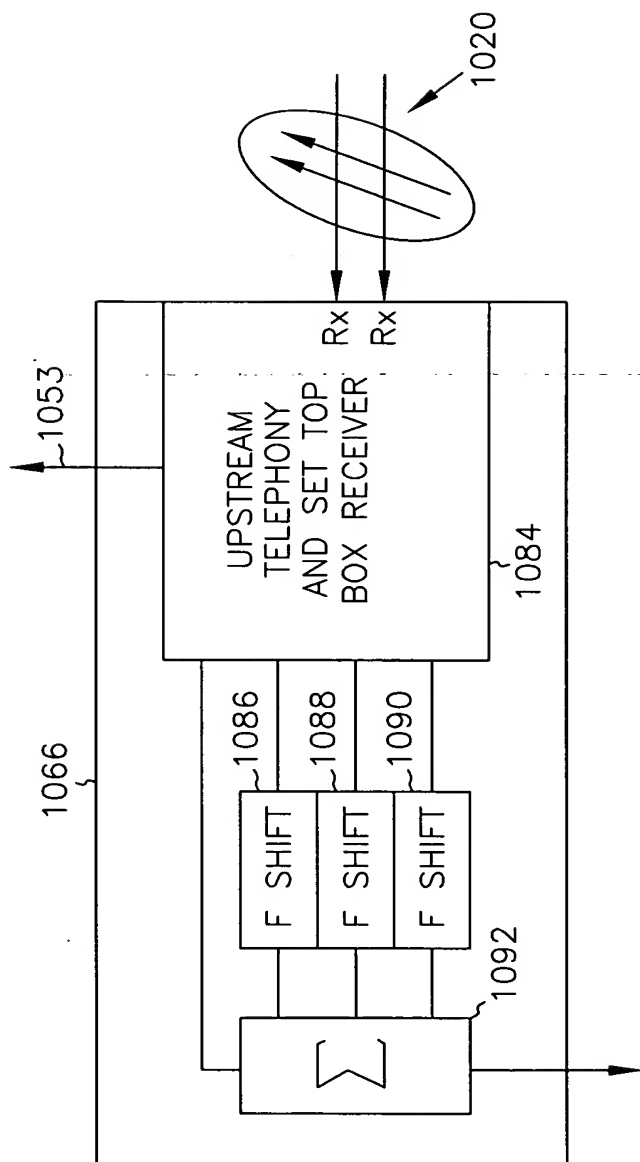


FIG. 122

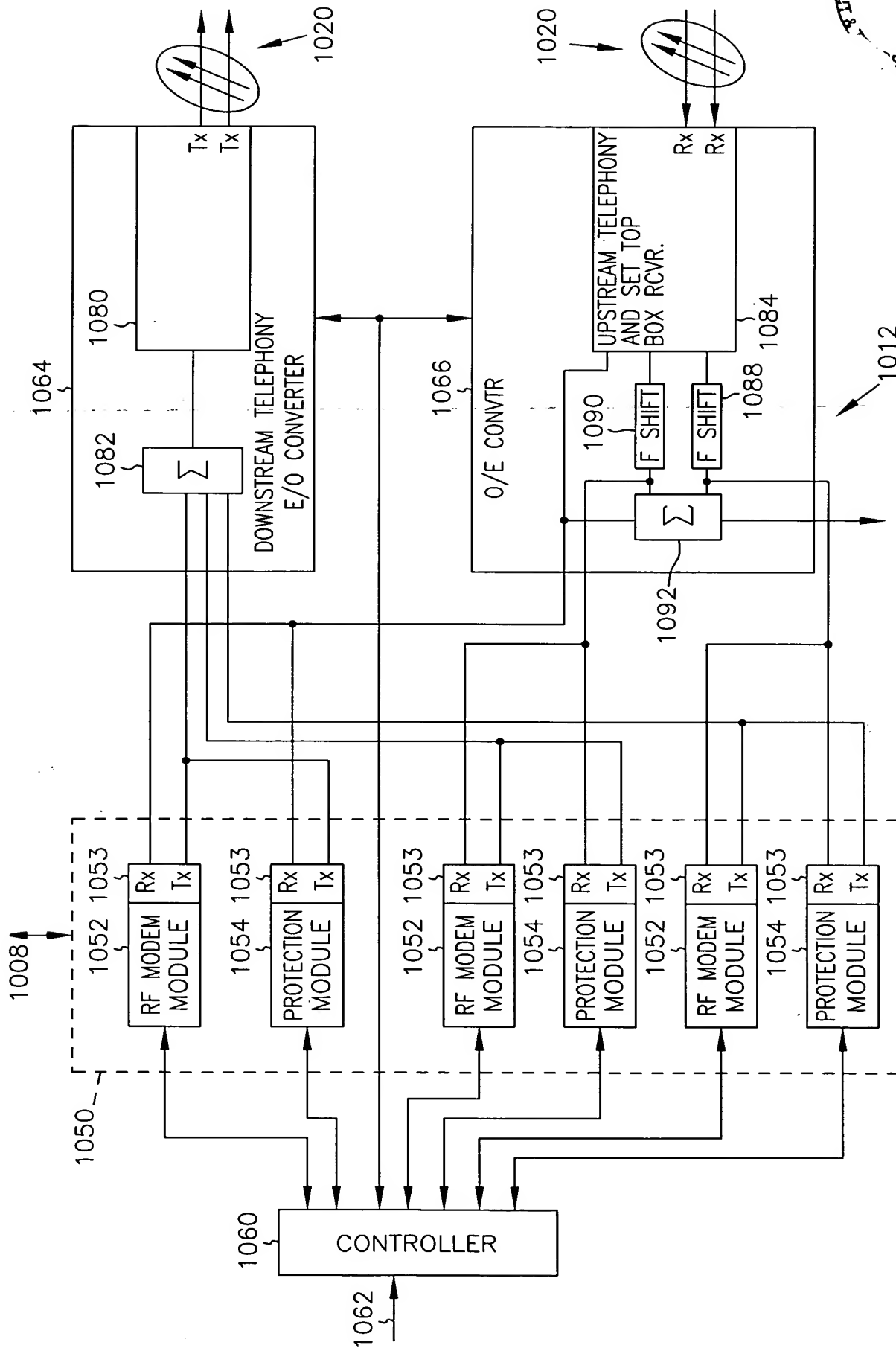


FIG. 123



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